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Deliverable D4.1

Industry study cases report: A collection of marketing successes and failures in the World based on clever product innovation and/or marketing activities

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Executive Summary

Innovation is a 'good, service or idea that is perceived by someone as new'. It is widely acknowledged that innovation is required for the growth of output and productivity and is also seen as a key to business success in a competitive environment. In 2012, the food and drink manufacturing industry in the European Union was the largest manufacturing sector in terms of value of the output with 15% of the total manufacturing turnover. However, it is widely perceived as not highly innovative. In addition, the commonly reported figures for new food product failure are between 70% and 90%.

The present report was developed through a mixed research method – a combination of qualitative and quantitative analysis. The quantitative analysis used data from the Global New Product Development (GNPD) Database provided by Mintel (market intelligent agency) and focused on innovation of food product containing seafood as major ingredients in 25 European countries. The innovation in the database can be from five different launch types: a totally new product, a new packaging, a new recipe, an extension of the range and a product relaunch. Secondly, an explorative multiple case study analysis was performed based on 17 cases of innovative seafood products (4 failures and 13 successes) balancing the different types of innovations, claims, fish species, markets and successful/failed products as much as possible. All the selected cases have at least one product based mainly on one of the following fish species: salmon, trout, seabream, seabass, cod, pangasius or herring. Multiple data sources were used to develop the case studies: archives, interviews, questionnaires, and observations. The case analysis was structure along a common framework derived from literature review on food/fish innovations.

Cod innovations increase across the European market, even if the share of cod over all seafood products is decreasing. It shows an orientation of cod innovation over sustainable claims (SC) (65.26% of SC is environmentally friendly product, as MSC label). An important part of cod innovations is frozen. Herring innovative products are mainly produced in Germany and East European countries. Even if the number of innovation for this species increases at a lower rate than for others species, innovative herring products with sustainable claims don't follow the same path and increase faster than all seafood innovation in this positioning. Products containing trout are not the most innovative seafood products, only a few references have been listed in the database used. The number of sustainable innovations increased slower than for other species. Salmon is an important species due to the number of innovations. Many companies on the salmon market are major retailers on the European market, and only few salmon specialized companies are present among the most innovative companies. The use of sustainable claims increases, but this increase is not significantly different to the average increase of all others species on the European market. Pangasius is not a widespread fish in Europe, and it represents only 0.67% of seafood innovation. Nonetheless, pangasius products have a clear positioning on naturalness and sustainability, probably in order to thwart the poor perception of this fish on the European market. Seabass products are not numerous on the market, but many firms are interested in its commercialization. Some of them as a diversification, others as a central specie to develop further. A large majority of seabass products is positioned in such a way on the market to help in the acceptance of transformed seabass. Indeed, it is a species usually consumed fresh, without any transformation.

The key driver for innovation, whether product or process, was the pursuit of larger market share or sustained competitiveness. The companies have demonstrated awareness of growing market demands in “convenient” fish products, but the way they respond to these demands varied by the firm scale. Both large-scale and small-scale companies’ mainly responded to internal stimuli for innovation based on the company developed business strategies and consumer research. Bigger companies tended to pass a clear message on their product quality to consumers, focusing on the product convenience and health. Smaller firms tried to occupy the niche market by targeting narrower consumer groups with very specific preferences.

Innovation process has also varied between different firm scales. While in small company this was typically triggered by either current staff members or external institutions like universities, larger companies had dedicated R&D department for new innovation generation. Big companies also usually followed structured product development models as part of a wider innovation strategy, whereas small companies introduced innovation through “trial and error”. No correlation has been found between the product success and the innovation process strategy per se. Nevertheless, ‘customer pull’ type of projects are expected to be more successful as they are more tailored the specific needs and wants of the end consumers.

While due to sampling limitations, no major generalisations could be made about the wider industry, the results of the cases investigated point towards the need for a purposeful and goal-oriented approach to innovation, with strong leadership and an intellectual inputs from various sources.

There was a strong indication that a new seafood product has to be a good ‘fit’ for the intended market, implying the need for clear understanding of the market (whether through marketing research or other means) and target consumer.

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1 Introduction

In 2012, the food and drink manufacturing industry in the European Union was the largest manufacturing sector in terms of value of the output with 15% of the total manufacturing turnover. It also remains one of the largest in terms of employment and number of companies, the large majority of which are small and medium scale enterprises (SMEs) (ECSIP Consortium, 2016).

Within the food and drink industry, the seafood processing sector had the smallest share of turnover in 2012. With 3570 companies, it occupied 0.01% of the total number of companies in the food sector (ECSIP Consortium, 2016). Nevertheless, the enterprises operating in the EU food and drink industry are a vital link in the supply chain, enabling wider economic activity and employment (Traill & Grunert, 1997).

In the context of globalisation and increased competition on domestic and foreign markets, innovation is seen as a key pathway to creating and sustaining competitive advantage at the firm level as well as stimulating wider economic growth (Porter, 1985, 1990). Indeed, one of the five targets of the Europe 2020 strategy is 3% of the GDP of the EU to be invested in R&D, a tool for innovation (EC, 2016). The food and drink industry, however, has been scored as a low-medium R&D intensity sectors, a group of sectors with R&D intensity between 1% and 2% of net sales, which comes at the background of companies in the automobile and electronics industries with R&D investment of more than 20% (Hernández et al., 2014). Nevertheless, as we will see below, this may not necessarily mean lack or a low level of innovation.

1.1 What is innovation?

Innovation is a 'good, service or idea that is perceived by someone as new' (Grunert et al., 1997). According to the same authors, innovation may be related to invention but not all product innovations are based on inventions. New product could merely be an improved existing product. Schumpeter (1939) distinguishes between five types of innovation: introduction of new products; introduction of new methods of production; opening of new markets; development of new sources of supply for raw materials or other inputs and creation of new market structures in an industry. Similarly, The Oslo Manual on collecting and interpreting innovation data distinguishes between four innovation areas: product, process, marketing and organisation (OECD, 2005). In the context of the food industry, innovation can include new products, new types of packaging (including both the physical characteristics of packaging and the contents of information on it, new recipe (new flavours, new additives, conservation methods), range extension, re-launch, new marketing methods and implementation of a new or significantly improved logistical process (ECSIP Consortium, 2016).

The focus of this study is primarily on product innovation. However, the distinction between product and process innovation is not always clear-cut, since product and process innovation are often dependent on each other. Process innovation has been defined as "an investment into a company's skills, resources and competences, which allows the company to introduce cost-saving changes in the production processes but also to introduce new technology which allows the production of a range of products quite different from the existing one" (Grunert et al., 1997). Modern market pressures have pushed food processing companies to move away from a focus of process improvement and cost reduction alone, which used to be the norm in the past, towards creating products that meet the consumer demands more successfully, where product innovation plays a key role (Fortuin & Omta, 2009). In the present-day food industry the introduction of new products is seen as an essential element of competition between companies (Grunert et al., 1997).

1.2 Why look at innovation

It is widely acknowledged that innovation is required for the growth of output and productivity. Schumpeter (1939) argues that economic development is driven by innovation through a process of

replacement of old technologies with new, which he labels “creative destruction”. But innovation is also seen as a key to business success. A large study by the American Management Association, involving 1396 executives from large multinational companies showed that more than 90% of the participants believed innovation to be important or extremely important for the long-term success of the company and that this will still be the case in ten years’ time (AMA, 2006).

However, unsuccessful innovation may be even more harmful than no innovation, given the high costs associated with it (Traill & Grunert, 1997). The commonly reported figures for new food product failure are between 70% and 90% (Stewart-Knox & Mitchell, 2003). However, as pointed out by Grunert et al. (1997) those figures may be overstated since the definition of success, usually measured by the period which a product has been on the market, is not standard, and indeed a product may be successful even though short lived, depending on its intended function. For example, a range of products can be introduced by a company to diffuse the success of a new product launch by a competitor, being consequently withdrawn but nevertheless strategically successful. Similarly, the definition of a new product varies among authors. It has been argued that if a new product is ‘one that is new to the consumer’ only 7-25% of food products launched can be considered truly novel (Rudolph, 1995).

1.3 Aims and objectives

In this report we mainly aim at addressing four research questions:

Q1: How has the seafood innovation developed over time in general and for the selected species?

Q2: What drives product innovation at the company level?

Q3: What factors determine the focus of innovation?

Q4: What factors are responsible for success or failure in product innovation?

2 Methodology

The present report was developed through a mixed research method – a combination of qualitative and quantitative analysis. The combination of data types can be highly synergistic. Quantitative evidence can indicate relationships which may not be salient to the researcher, while qualitative data are useful for understanding the rationale underlying the relationships showed in the quantitative data or suggested through theory (Eisenhardt 1989).

The report starts out with an analysis of The Global New Products Databased (GNPD) which is constructed by Mintel, a market intelligence agency, working across 34 countries. The main objective of GNPD is to provide data giving the depth of resources necessary to track trends in product innovation and retail success. Product innovation are tracked on shop and online across 62 of the world’s major economies; and around 33,000 new products a month are added into the database. Eighty fields of information ranging from companies information and flavour to packaging and positioning are noted. This database allows access to the products characteristics, the marketing positioning and the type of launches. However, it only concerns packed products. It provides detailed data on new products launched in the food, beverage, beauty and personal care, healthcare, household goods and pet care markets.

The innovation taken into account into the database can be from five different launch types: a totally **new product**, a **new packaging**, a **new recipe**, an **extension of the range** and a **product relaunch**. The product has to be claimed as “new” to be picked up. A new product corresponds to a new line or a new family of products for the brand, this kind of launch is brand depending. This also includes brand products that are launched in a new country where the product was not commercialized (Mintel International Group Ltd. 2012). A new packaging is based on the visual aspect of the product, it corresponds to product labelled as “new look”, “new size” or “new packaging” (Mintel International

Group Ltd. 2012). A new recipe concerns the new ingredients formulation of an existing product. An extension of the range depends of the brand line; it is assigned when an innovation is the horizontal extension of an existing line (Mintel International Group Ltd. 2012). Finally, a relaunch is assigned to an innovation when it is indicated on the product packaging or when a secondary information source informs consumers (trade show, website or press). It is also assigned when the product has been both reformulated and it has a new package (Mintel International Group Ltd. 2012). Thus, there are mainly product and marketing innovations valorised in this database, as major process or social innovations are not necessarily highlighted to shopper.

For this analysis on European Seafood market, we looked at food product containing seafood as major ingredients (seafood has to be in the five main ingredients to be selected for this analysis). The European market as delimited (and covered) by Mintel concerns 25 countries: Germany, Austria, Belgium, Croatia, Denmark, Spain, Finland, France, Greece, Hungary, Ireland, Italia, Norway, Netherland, Poland, Portugal, Czech Republic, Romania, United Kingdom, Russia, Slovakia, Sweden, Swiss, Turkey and Ukraine.

Secondly the report focus on a primarily qualitative analysis - an explorative multiple case study analysis where the unit of analysis is the firm, although special attention is also given to one of the main successful or unsuccessful company's products. The research strategy of case studies was chosen because it focused on understanding the dynamics present within single settings, at numerous levels of analysis, and can be used to accomplish various aims, ranging from providing a description to generating theory (Eisenhardt, 1989).

The cases were identified from secondary data (e.g. newspapers, company sites, specialized literature, innovation awards, etc.). Then, a first stage selection based on careful cross-checks with databases such as Lexis Nexis⁴ and GNPD, resulted in 60 proposed cases (9 product failures and 51 successful products). From them, 17 were selected (4 failures and 13 successes) for in-depth studies, in order to provide a detailed view on the successful – or unsuccessful – industry practice /or learnings.

All the selected cases belong to the seafood industry and have at least one product based mainly on one of the following fish species: salmon, trout, seabream, seabass, cod, pangasius or hearing. Moreover, the final selection of the cases was done balancing the different types of innovations, claims, fish species, markets and successful/failed products, among the cases. The selected cases can be observed in the Table 1.

⁴ <http://www.lexisnexis.com/hotttopics/lnacademic/>

Table 1. *Case studies general information*

Case	Innovation	Major claim	Fish species	Markets	Launching year	Success/ failure
A	-New packing -New recipe	- Convenience	Salmon, Seabass, Seabream	UK	2010	Success
B	-New recipe	- Quality and tradition	Herring	France	2012	Failure
C	-New product -New recipe - Extension range	- Natural - Health	Salmon	United States, Canada, European Union	2014	Success
D	-New product -New process	- Quality and taste	Salmon	Italy	2000	Success
E	-New product - Extension range	- Convenience	Salmon, Cod	United States	2014-2015	Success
F	-New product	- Natural - Health -Local	Trout	Italy	1989	Success
G	-New product -New recipe	- Convenience - Health	Trout	Italy	2015	Failure

H	-New product	- Convenience - Natural	Trout	Italy, Switzerland	n.d	Success
I	-New product -New recipe	- Convenience - Health	Seabass	Italy	2011	Success
J	-New product -New recipe	- Convenience	Pangasius	Europe, Asia and USA	2005	Success
K	-New process	- Quality	Trout	UK	2008	Success
L	New Product	- Convenience	Salmon	Spain	2013	Success
M	New product	- Convenience	Salmon, cod, seabass, seabream	Europe	n.d	Success
N	New Product	Convenience	SeaBream	Greece, Russia	n.d	Failure
O	New product	Natural, Health Gourmet	SeaBass	Croatia, Italy, Germany	2011	Failure
P	New process	Quality	Salmon	Norway	n.d	Success
Q	New product	Quality	Cod	Germany	n.d	Success

From the selected cases, 13 are product innovations, frequently related to new recipes (4 cases) or to an extension of product range (2 cases). There is also one case in which the new product development is related to a new process. Among the claims, the most common ones are convenience (9 products), health (5 products), high quality (5 products) or natural (4 products). Less common claims include taste or gourmet (2 products) and the 'local' claim (1 product). Regarding the fish species, 3 of the analyzed products are based on several fish species (salmon, cod, seabass and seabream). The rest of the products are focused on one particular specie: salmon (5 products), trout (4 products), seabass (2 products), seabream (1 product), cod (1 product) and pangasius (1 product).

Following the selection of the cases, multiple types of data compilation are used to develop the case studies: archives, interviews, questionnaires, and observations (Yin 1994). The case analysis was structure along a common framework derived from literature review on food/fish innovations. The major areas were developed in a semi-structured interview guideline, sent with instructions to all partners. The guide included information as aspects of company general information, market structure, innovative practices, innovation inside the firm, sources of innovation, success/failure perception, and more detailed information on the selected successful/fail product.

All firms were contacted by phone and additional information was sent via e-mail by local researchers. The semi-structured interviews were developed at the firms in their local language in order to enhance understanding. The interviews were carried by one or two local researchers, and when possible, these were recorded. The interviews were reinforced with additional secondary data collection and analysis. Then, based on the interview material and secondary data, a cross case analysis is performed with the objective of identifying commonalities and differences between the firms, operative markets, species, and successful/failure outcomes.

The analysis of the information is done through a cross-case analysis. All the results are presented based on the analysed case studies. Additionally, the report offers some comparisons of the qualitative and quantitative results. The general framework used for the analysis is divided into three main levels even though these clearly interrelate and interact:

1. Innovative potential at the supra-company level - the wider environment
2. Company's innovative potential
3. Influences on innovation success at the project level

When investigating at the innovative potential at the supra-company level – i.e. the wider environment we look for factors like market structure/characteristics, the firm's perspective on consumer trends (needs/wants), value chain organization and regulation.

When looking at the innovative activity at the company level we looked for factors like company size, resource availability and experience. Further firm strategy and orientation, capabilities and relationships with other companies/institutions where investigated.

Finally, when it comes to each of the selected case products, the material was analysed based on factors such as; source of the innovation, innovation strategy, organisation of the NPD (individuals, relations, management involvement, etc), type of innovation (incremental, radical, 'originality'), market and consumer knowledge, process of new product development and perception of success and effect on performance.

3 Background: literature review

The EU food industry is a dynamic arena affected by wider socio-economic processes. To remain competitive in the modern world, food manufacturers must develop capacity to innovate quickly and effectively as reliance on a stable range of traditional foods can no longer ensure business success (Grunert et al., 1997). The following discussion starts with an overview of the major trends in the industry, particularly as they relate to pressures on the industry to innovate. It then proceeds with a review of the factors deemed important for the success or failure of new food products.

3.1 Drivers of innovation – the bigger picture

Over the last several decades, significant changes in the patterns of food consumption have been observed in industrialised countries, with inevitable influence on the rate and direction of product innovation. The drivers for these changes will be examined from different perspectives, which however, are inherently related to and reinforcing each other.

3.1.1 Economic factors

Generally, growing disposable incomes in industrialised countries has translated into changes in the patterns of expenditure on food, such that an overall higher level of expenditure on food, through consumption of higher quality and more diversified foods rather than higher quantity, can be observed (Traill, 1997). When it comes to seafood, however, the development of consumer prices has played a similarly important role in determining consumption trends. Since price is often cited among the main barrier to consumption of fish and seafood (Birch, Lawley, & Hamblin, 2012; Liu, Bui, & Leach, 2013; Myrland, Trondsen, Johnston, & Lund, 2000; Trondsen, Scholderer, Lund, & Eggen, 2003; Verbeke & Vackier, 2005), a decrease in their prices relative to other sources of protein can act as a driver for consumption and overall expansion of the market. Indeed, good illustrations of this are shrimp, salmon, tilapia and pangasius, all of which are internationally traded commodities whose real prices have declined over time due to increased and more efficient production methods (Asche, Bjørndal, & Young, 2001). For example, shrimp and salmon have been leading the international farmed seafood market for almost three decades, with current real prices a third of what they were three decades ago (Asche, Roll, & Trollvik, 2009). However, relative prices of close substitutes remain still important for consumers. This is particularly true at times of economic recession, when clear declines in seafood consumption can be seen as consumers 'trade down' the food basket (Seafish, 2015).

3.1.2 Consumer concerns

A wide array of non-economic factors is also at play in determining the trends in food consumption. Increasingly, these relate to 'intangible' aspects of the product, such as ethical and sustainable sourcing.

3.1.2.1 Diet and health

As the populations of many industrialized countries are becoming older, richer, more educated and more health conscious, the demand for food that promotes health and well-being is growing (FAO, 2008). Seafood has often been promoted as having a variety of positive health properties. Because of that, seafood, and especially oily fish, can also be seen as a functional food (Gormley, 2006), a fast growing market with high opportunities for innovation (Khan, Grigor, Winger, & Win, 2013). However, risks of eating fish linked to contamination with carcinogens has also been communicated to the public (Sidhu, 2003). As a result there is a general confusion over the right choice of seafood (Oken et al., 2012), the individual choice whether to consume fish or not being eventually dependent on the type and accuracy of information consumers are exposed to (Burger & Gochfeld, 2009).

3.1.2.2 *Environmental concerns*

Consumers, as well as major distributors, are increasingly concerned about the sustainability and risk of depletion of marine stocks. While the range of fish and seafood products labelled as sustainably sourced is expanding and the demand for sustainable seafood products is rising (Roheim, 2009), there is a debate whether this is due to genuine consumer demand or due to influences by NGOs and branding strategies by retailers (Gutierrez & Thornton, 2014). Gulbrandsen (2006) and Bush et al (2013) for example argue that most markets for eco-labelled forestry and fisheries products have been created as a result of pressure by environmental groups on consumer-facing corporations, rather than resulting from consumer demand. In any case, consumers have as a result an increasing abundance and diversity of certified seafood product to choose from. Increasingly, consumer behaviour is shaped by the growing popularity of sustainable seafood guides, such as Monterey Bay Aquarium's Seafood Watch and MCS Good fish (Roheim, 2009). However, the availability of too much information from different sources, with sometimes conflicting advice can lead to consumer confusion and even negatively impact consumption (Oken et al., 2012; Roheim, 2009). The issue whether demand is genuinely 'consumer driven' or resulting from a 'retailer push' would remain nevertheless important to the performance of new seafood products on this market.

3.1.2.3 *Production methods and safety*

Consumers have become increasingly concerned about the ways in which food is produced, with ranging attitudes towards the use of certain new food technologies (Grunert et al., 1997). More stringent demands for assurance concerning safety is yet another high-profile issue that has emerged in recent years and shaping consumption patterns. As a result a variety of safety certifications have been developed which have become requirements by supermarket chains. European retailers for example increasingly expect supplies to comply with quality standards such as BRC and IFS, as well as traceability (CBI, 2015).

3.1.3 *Societal change*

Significant increase in the demand for convenience food can be attributed to increased participation of women in the work force (Traill, 1997). Due to factors such as time pressure, there is a strong rise in the demand for products that are ready to eat or require little preparation before serving (Brunner, van der Horst, & Siegrist, 2010). And while fish has been widely considered inconvenient because of the time and skills required for preparation (Olsen, Scholderer, Brunsø, & Verbeke, 2007), the current wide availability and expanding market for value added convenience seafood sets a new norm of how fish is consumed (Olsen, 2004). For example, the development of vacuum packed, pre-cooked mussels with sauce has been highly successful on the UK market, driven by the convenience, longer shelf life and versatility. In 2008 the ratio of Scottish produced mussels going to fresh counter market and to value added market were 70% to 30% respectively with a combined value of £6 million while in 2015 the ratio was 25% to 75% respectively with combined value of £15 million (Cameron, 2015). The trend in expanding value added seafood markets presents a vast opportunity for innovation in the field, with particular reference to younger generations.

Further, according to Olsen (2003) frequency of seafood consumption is positively correlated with chronological age, mediated by attitudes toward eating seafood, health involvement and perceived convenience. Markets where population is aging, and the number of one-person single households is growing, such as the UK and other European countries, present an opportunity for innovation tailored to this particular consumer group.

3.1.4 *Availability of food products*

The increase in the global supply of seafood over the last few decades, combined with technological innovations, has facilitated the international orientation of the seafood industry. In particular, progress in storage and preservation and improved logistics leading to lower costs have allowed international

trade to grow (Asche, Bellemare, Roheim, Smith, & Tveteras, 2015). An increased range of raw material available to processors has stimulated experimentation with new species and served as a basis for a wide variety of seafood product innovations. Notable examples are pangasius, tilapia and shrimp.

3.1.5 Food retailing

Food retailing in Europe has become concentrated in the hands of leading multiple retailers with inevitable impact on innovation not only for processors but throughout the value chain (Murray & Fofana, 2002). One of the most powerful tools of retailers exerting control on the value chain is their 'private label' products (Bunte et al., 2011). It is generally accepted that private labels utilize markets created by branded products, by 'imitating' successful products. Private label products require little advertising as they rely on the image of the store, thus they are well placed to compete on price with the highly advertised branded products, pushing leading manufacturers to innovate even faster. At the same time, 'private labels' provide an opportunity for small and medium scale enterprises to supply the market while avoiding the prohibitive costs of developing a recognised brand (Traill, 1997).

3.2 Factors for success in innovation

A considerable amount of insight on the key success and failure factors in new product performance has been published in the late twentieth century. This has led to the generation of a plethora of factors deemed critical for successful innovation, often cited with contradictory outcomes (Balachandra & Friar, 1997; Grunert et al., 1997). The discrepancies could partly be explained by the lack of methodological standardisation in the study designs and definition of key variables, but also by the contextual differences. The vast majority of these studies focus on high-tech industries such as electronics, biotechnology, or pharmaceutical (Fortuin, Batterink, & Omta, 2007). The number of food-related studies on innovation is considerably smaller, while regarding seafood it is negligible. While drawing from a wider industrial base, the following synthesis will review the factors with higher relevance to the food industry, wherever possible illustrating with examples from the seafood sector.

3.2.1 Enabling environment

Porter (1990) argues that government policies play a key role in determining the competitiveness of enterprises as they directly influence the factors responsible for competitive advantage, with inevitable influences on innovation potential. Indeed, as pointed by Lindkvist & Sánchez (2008), prohibitive regulations have had a negative impact on the innovative activities and overall competitiveness of the Norwegian salt fish producers on the Spanish market. In particular, laws not allowing the processors to own fishing vessels have resulted in a fragmentation of the value chain and low level of control over the quality and timing of raw material supply. This has been further exacerbated by prohibitions on the use of chemicals other than ascorbic salts in the process of salting fish, leading to products of perceived inferior quality compared to the phosphate and antioxidant treated Icelandic products.

3.2.2 At the company level

3.2.2.1 Interaction with other companies

Innovation capabilities at the company level can be influenced by the existence of clusters of companies producing interrelated products and having high level of coordination between their activities, thus exploiting a larger pool of skills and enhancing their innovative power. The same advantages can be exploited in a network of companies, not necessarily physically clustered together (Grunert et al., 1997).

In a similar fashion, vertical cooperation can bring advantages to the innovative activities of the firm in the form of generation of market intelligence by sharing of information between downstream and upstream members, increasing the firm's portfolio of competences and improving cross-functional communication.

However, it has been argued that the inflexibility created by committing to a few partners may act as an impediment to market intelligence generation and competence expansion. Similarly, increased levels of bureaucracy, especially in connection with large retail chains with emphasis on price instead of differentiation, may inhibit upstream innovation. In such cases, the choice of co-operation partners becomes a crucial issue.

In addition to regulations, a lack of cooperation in innovation and market development, due to mistrust and protection of self-interests, between producers of salt cod in Norway has been cited as a central factor for the loss of market share to Icelandic producers on the Spanish market (Lindkvist, 2010).

The role a company plays in the supply chain can directly influence its innovative potential. Harmsen & Traill (1997) show that the seafood company 'Royal Greenland' increased considerably its innovation activities when it expanded its customer base from food service to retail. Similarly, Christensen et al. (2011) find that firms delivering directly to end users were more likely to be innovative than those delivering to the processing or wholesale links of the value chain.

3.2.2.2 Size of company

Size of the company has been a central variable in much of the literature on innovation activity at the company level. The neo-Schumpeterian view maintains that large companies are more innovative than small companies, largely because of better resource base; human and financial (Grunert et al., 1997). In fact, previous research has shown that small firms face the liability of smallness (Aldrich and Auster, 1986; Freeman et al., 1983), that refers to the limited access to financial resources and competitive human capital. Such constraints might generate a limited market power and a small customer base (Carson, 1985), as the firms are unknown to their potential customers (Gaddefors and Anderson, 2008). Thus, these companies must devote several resources to building an identity, but the process is lengthy and costly (Gruber, 2004).

An alternative view, argues that SMEs tend to be market makers while large companies tend to be imitators, if the potential market volume allows large scale production. It has also been argued that SMEs are more prone to innovate because of organisational and behavioural characteristics allowing them to react to market changes more quickly e.g. little bureaucracy, high commitment and motivation by managers, higher exposure to competition, lower innovation costs, higher R&D efficiency. Similarly, it has been hypothesised that radical innovation is more typical of small and medium scale companies because it does not fit with the pragmatic philosophy of larger companies which are looking for a systematic innovation process. Nevertheless, according to Grunert et al. (1997), there is no consensus in the literature regarding the influence of firm size on its innovativeness.

3.2.2.3 Orientation of the company

Innovative activity can be seen as pertaining to a particular innovation or to the company in general. When it comes to particular innovations, it has the dimension of how new it is to the market and how new it is from a technological point of view. Innovation at the company level can be broken down to innovation speed, innovation willingness, innovation capacity and innovation quality (Grunert et al., 1997).

Earle (1997) argues that successful innovation is reliant on innovation-oriented company and positively reactive environment. It is the company's strategic decision whether to pursue an innovation course or not. A firm may take either reactive or proactive approach in innovation to either avoid losing market share to an innovative competitor or to gain strategic market position relative to its competitors.

Depending on their involvement with innovation activities companies can be divided into innovative (or prospectors); improvers, getting involved once the initial products have been already developed;

'me too' companies, copying what others have already introduced on the market; and 'die hard' ignoring innovation altogether (Earle, 1997; Fortuin et al., 2007). The spectrum can be illustrated again by Icelandic companies producing salt cod for the Spanish market at one end and their Norwegian counterparts at the other (Larsen, 2014; Lindkvist, 2010).

Grunert et al. (1997) presents a further nuanced picture of innovation at the company level by providing two different perspectives: the first linking innovation with technological change, the driving force of economic growth, which is linked to, and can be measured by, R&D activities. As such the food industry could be classified as a low-tech industry due to the small R&D to sales ratios typically reported. In this view innovation could be regarded as a 'technology push'.

On the other hand, from a marketing perspective, innovation can also be viewed as an activity required for fulfilling the unfilled needs and wants of potential customers using the skills, competences and resources of the company, often referred to as 'market-orientation' of the company, or 'demand pull'. This view maintains that R&D activities do not guarantee innovative success alone, but only in interaction with the needs in the market (Gupta, Raj, & Wilemon, 1986).

As seen before, the food industry is generally considered as one with a low R&D expenditure. Indeed, Harmsen, Grunert, & Declerck (2000) in a series of case studies from the food industry showed that R&D is of minor importance in the innovation process, but innovative activities are nevertheless carried out. This was supported by findings by Avermaete et al. (2004) from a study on small-scale food manufacturers and by Christensen, Dahl, Eliassen, Nielsen, & Østergaard (2011) from a wider sectorial analysis. This has led Harmsen et al. (2000) to revise the framework proposed by Grunert et al. (1997) by focusing greater attention on 'market orientation' and 'competencies' and their interaction as explanatory factors for success. In their revised framework, orientation was seen as relating to 'product', 'process' and 'market', rather than simply markets. Competencies of the firm relate to the types of orientation but all three types, albeit to different degrees, were required for successful innovation. In-house capabilities of the work force were found to be strong determinants of innovation, particularly in small food firms (Avermaete et al., 2004). That is where the culture of the company and its vision are critical to successful innovation. It has been suggested that unconventional individuals rather than conventional science or engineering are central to innovation success. However, without entrepreneurial spirit and openness, new ideas by such individuals can be dismissed.

3.2.3 At the project level

There is a great number of studies identifying performance factors and Ernst (2002) provides an extensive review of the topic. Here we focus on some of the most often cited groups of factors, particularly as they relate to the food industry and over which there seems to be some level of consensus.

Among others, the success and failure of new food products has been related to the **process of new product development** (Stewart-Knox & Mitchell, 2003). The process comprises five to eight steps spanning from idea generation to launch activities, going through screening, research, development and testing. The sequence in which those activities are undertaken has been linked to success in the past. For example (Cooper & Kleinschmidt, 1987) argue that companies which taking a stepwise approach were more successful. However, in later publications the same authors show that concurrent, overlapping, flexible approach has better potential than a simplistic stepwise model (Cooper & Kleinschmidt, 2007). The common ground is the requirement for repeated evaluation throughout the process.

Market and consumer knowledge and **retailer involvement** in the process of new food product development has also been highlighted as a factors critical for success (Kristensen, Østergaard, & Juhl, 1998; Stewart-Knox & Mitchell, 2003). Similarly, the involvement (as well as its intensity and quality),

of the **final consumer** during the process of product development has been claimed to have positive impact on the outcome of innovation (Gruner & Homburg, 2000). Hoban (1998) has shown that new product developers in the USA rely heavily on retailer customers for market information, and few draw on other sources of information, consequently the retailer involvement has become increasingly important but does not guarantee success. The importance of gathering of information from a **variety of independent sources**, including retailers, suppliers, research centres, consumers, prior to the development of new products has been emphasized as a unique to the food industry (Stewart-Knox & Mitchell, 2003). Similarly, in a number of publications Cooper emphasizes the importance of market **research up-front** of the initiation of the process of product development (G. R. Cooper & Cooper, 1994; R. G. Cooper, 1999; R. Cooper, 1996). However, McGinnis & Ackelsberg (1983) note that market analysis can limit the innovators to existing markets with small incremental innovations rather than direct them to undeveloped markets with major innovations. Therefore, a careful balance must be maintained between market analysis and thinking 'out of the box' (Balachandra & Friar, 1997). Furthermore, good market analysis is dependent on the quality of data, but as the same authors have pointed out, analysing customer needs may not yield accurate information as the needs may not be known by the customers themselves. In an earlier paper (Balachandra, 1984) suggests the need for an existence of a strong market, instead of a potential market, as the difficulties associated with consumer research can be thus avoided.

Most prospector organise the innovation processes, including new product development, in projects where different functional areas of the firm are represented in cross-functional teams co-operating throughout the process (Fortuin et al., 2007). As Robert G Cooper (1999) points out important decisions as to whether to initiate a project, terminate or redirect it are rarely based on a systematic analysis of the factors determining success or failure, but rather on the **experience** of the team.

Overall, factors linked to product development strategy, indicate the need for a purposeful and goal-oriented approach to product development and balanced technological and market-related aspects, as well as a synergy with existing activities (Earle, 1997).

Although often pointed out as a critical factor for success in wider industrial innovation (Ernst, 2002), involvement of **senior management** throughout the process of food product development has not been consistently shown to be critical for success (Stewart-Knox & Mitchell, 2003), perhaps in part due to the variety of sizes of companies investigated in different studies and the different roles senior management play in them. In an UK study (Stewart-Knox, Parr, Bunting, & Mitchell, 2003), involvement of senior management seemed to be unrelated, while in Denmark (Kristensen et al., 1998) it was found to be a determinant for success.

Similarly, the **rate of new product introduction** has also been shown to drive success in opposing directions. Higher rate of introduction implies the growth stage of a product, therefore a higher chance of success, but at the same time greater intensity of competition – a negative factor for commercial success (Balachandra & Friar, 1997).

Generally, **original** products seem to be more successful than adapted products, because food products market can become quickly overcrowded, although that may be context specific (Stewart-Knox & Mitchell, 2003). And despite that the failure rate for truly new food products has been shown to be as low as only 25% (Hoban, 1998), only a small proportion of new food products are truly novel (Rudolph, 1995). This may be due to a fear of failure of a new product and taking the 'safe' approach of redeveloping old products, which however, only perpetuates the problem of high rate of product failure.

4 Results

4.1 Results from GNDP and discussion

Between 2000 and 2015, 22,406 seafood products have been launched on the European Market (based on Mintel's Global New Products Database (GNPD), 2016). Over this period, the average repartition by launch type is: 44.16% new varieties, 38.64% new products, 11.72% new packaging, 2.99% new formulations, and 2.49% product relaunches. As new formulation and relaunch are not very frequent strategies, we will regroup these two types of launch for further analyses (which is logical as a part of relaunch is reformulated products). Behind the type of launch we can underline several types of innovation strategies. First, new product tries to develop a new market answering to new needs. In this case, the innovation can be considered as a breakthrough innovation and it is the most risky innovation for firms. New packaging, new variety and new formulation are more adaptation or renovation innovation, and even if not without risk, they are supported by an existing market.

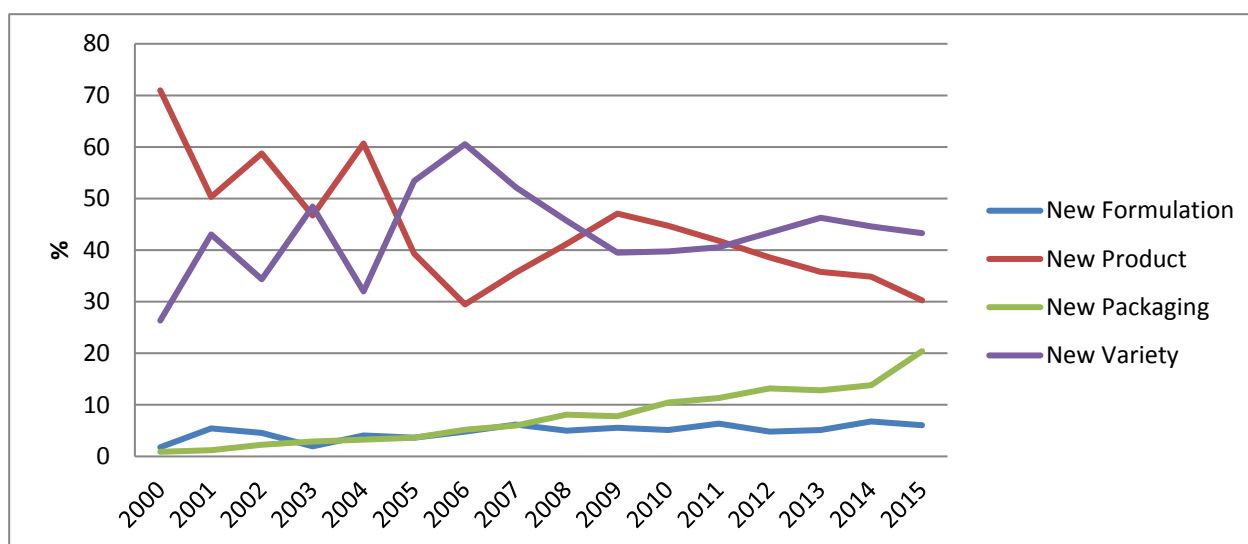


Figure 1. Products repartition over type of launch. Source: GNPD, 22,406 Observations

Thus, we can observe that the strategy of innovation has evolved over the period (see Figure 1). The part of totally new products has decreased, in favour of new variety and new packaging. In a very competitive global market, as two third of innovation disappeared within the first two years (Aurier & Sirieix, 2009), firms seem to favour adaptation and renovation, with a decrease in risk-taking.

These choices over type of launch can also be linked to the product positioning strategy. Different product positioning can be used to match products with consumer's expectations. This positioning claims can be related to sustainable claims (e.g. organic, environmentally friendly products and eco-labelled), convenience claims (e.g. Ease of Use and Microwaveable), natural claims (e.g. No additives/Preservatives and GMO Free), health claims (e.g. Antioxidant and Vitamin/Mineral Fortified) or other claims (e.g. Fair Trade, Kasher and Premium). Between 2000 and 2015, 63.76% of seafood innovations have at least one claim, the number of products without any claim is continuously decreasing over the period considered. No claim products represent 69.64% of product launched in 2000 and only 28.27% in 2015. Most used positioning is sustainable (28.14% of seafood products over the period) and convenience claims (28.19% of seafood products over the period), which correspond

to main consumers concerns in regard of fish consumption. Indeed the convenience in fish product is an important restraint to fish consumption: some consumers do not have the knowledge to prepare unprocessed fish, and fish is not viewed as an easy product to buy, to conserve and to cook (Brunsø et al., 2008). Furthermore, the convenience positioning is a more general food tendency leading to less cooking times and more easy-to-eat/easy-to-cook products. In regards of the sustainable concerns, this issue is important for seafood industries as some stocks are over exploited (FAO, 2014). And, as for convenience claims, sustainable claims on seafood products respond to a more general tendency on sustainability of food production, illustrated by the increase of organic products on shops shelves all across European countries.

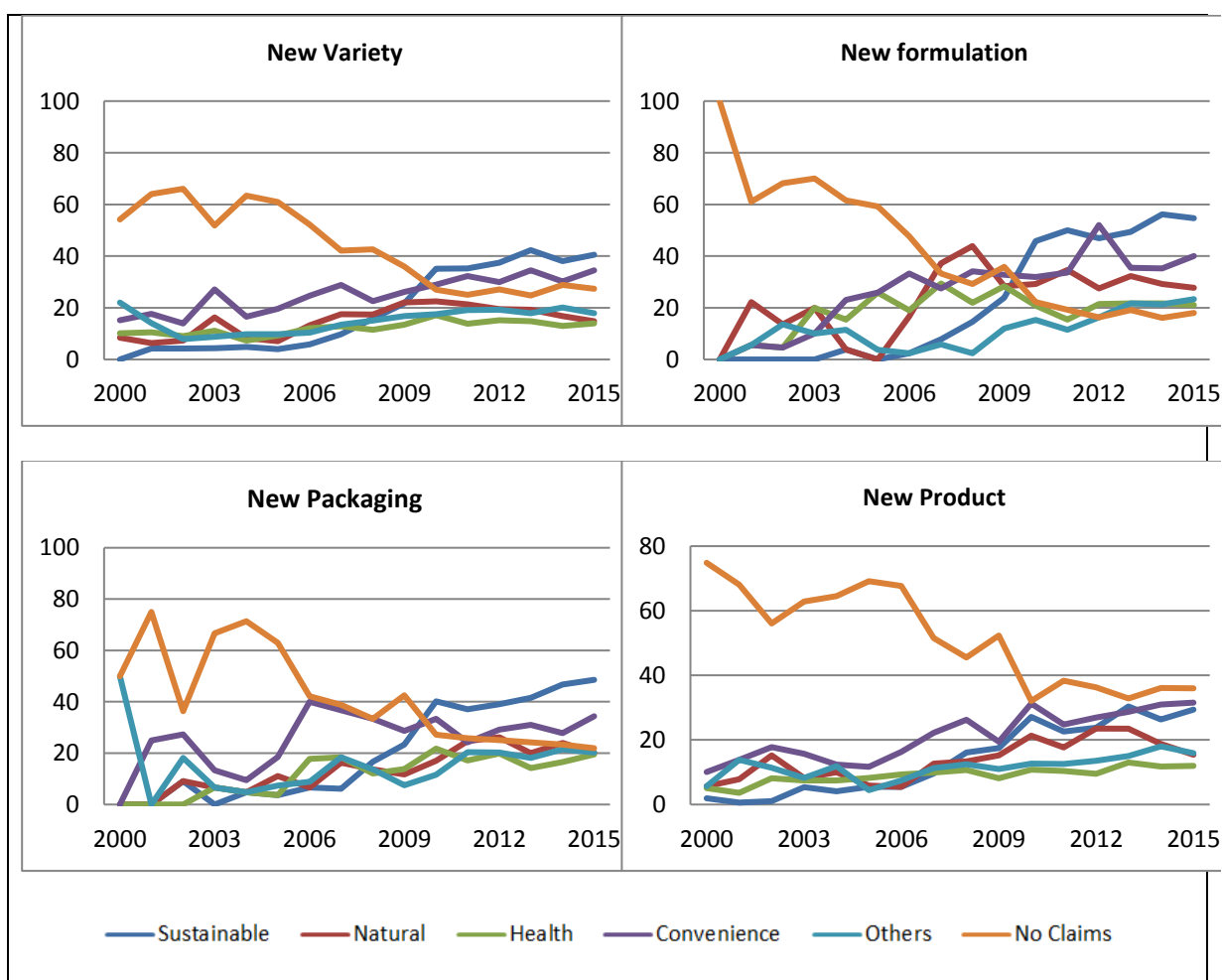


Figure 2. Repartition of claims by type of launch (%) between 2000 and 2015. Source: GNPD, 22,406 observations (New product: 8,657; New Packaging: 2,627; New Formulation: 1,228; New Variety: 9,894)

We observe different strategies over the different type of launch (see Figure 2). First, we assume that the choice of the product positioning can be either previous to the choice of launch either viewed as an opportunity after the choice of launch type. In the case of new product, the share of products without any product positioning is the most important compared to others categories, while this share is the lower for new formulation. In the case of totally new product, the innovation has been created for answer to new consumer needs, with probably less expectations in terms of product positioning, which can explain the higher share of products without claims. When a firm chooses to relaunch a product or to change the formulation it is generally to fit more to consumer's expectation with no major change. In this situation the use of claims is an easy way to communicate on product

characteristics, as convenience or sustainable dimension of the product. Those characteristics are either non-existent before the change either already existent but were not claimed to the consumer. The same opportunity occurs with a new variety or a new packaging: this innovation strategy of renovation/adaptation is a chance to expand the line to new positioning, to reach more consumers.

In regards of the repartition of innovation across Europe, countries with more innovations are France, United-Kingdom, Spain and Germany, representing 54% of innovations. Nonetheless, it is complicated to go on some deeper conclusion, as there is a possible bias on the shopping execution by Mintel across countries, as well as some differences on the seafood market size across those countries. It is more interesting to look at the country of origin of the innovative firms, as well as the repartition of innovation between national brand and private brand (Table 1).

Table 1. Top 10 of innovative firms. Source: GNPD; 22,406 observations.

Firm	Firm Type	Firm Nationality	Number of products	Percentage
Lidl	Retailer	Germany	833	3.72
Marks & Spencer	Retailer	United-Kingdom	734	3.28
Tesco	Retailer	United-Kingdom	497	2.22
Aldi	Retailer	Germany	354	1.58
Findus	Manufacturer	United-Kingdom	304	1.36
Iglo	Manufacturer	United-Kingdom	261	1.16
Carrefour	Retailer	France	250	1.12
Picard	Retailer	France	245	1.09
Asda	Retailer	United-Kingdom	239	1.07
Auchan	Retailer	France	232	1.04

If the majority of innovation are from national brand companies (61.82% of innovations between 200 and 2015), the top 10 company are for the most part retailer, with private brand products. They represent 17.64% of seafood innovation. Only two manufacturers reach the top 10: Findus and Iglo, generally the two leaders in the seafood market. We underline that most of those companies use more claims that other companies (the average of products with at least one claim is 63.66% for the entire sample - Table 2).

Table 2. Top 10 of innovative firms - products positioning. Source: GNPD; 22,406 observations.

Firm	Percentage of products with at least one claim.	Percentage of products with sustainable claim.	Percentage of products with natural claim.	Percentage of products with health claim.	Percentage of products with convenience claim.	Percentage of products with other claim.
Lidl	59.78**	28.93	3.48 ***	4.68 ***	16.33***	27.01***

Marks & Spencer	79.97***	57.36***	23.02***	16.21***	41.83***	15.53
Tesco	84.51***	44.06***	28.57***	15.69*	29.58	41.45***
Aldi	68.93**	41.53***	17.51	9.89 *	22.60**	20.90***
Findus	72.37***	49.01***	21.38	13.49	40.79***	8.88 ***
Iglo	90.04***	74.33***	52.87***	16.09	32.57	18.39
Carrefour	47.20***	10.80***	6.40 ***	6.40 ***	24.40	14.80
Picard	68.57	21.63**	0***	2.04 ***	53.88***	6.94 ***
Asda	82.01***	33.05*	53.14***	48.95***	23.01*	34.31***
Auchan	62.07	19.83***	9.48 ***	1.72 ***	29.74	28.88***
All companies	63.66	28.14	17.86	13.05	28.19	15.67

Mean comparison test (t-test): significant at *10%, **5%, ***1%

Companies using more claims are positioning more than average in at least two claims. For example, “Marks & Spencer” has more products with claims than the average, and that is for sustainable, natural, health and convenience claims. Only other claim isn’t used significantly more by “Marks & Spencer”. Over the 10 companies, only two are using fewer claims than others: Lidl and Carrefour, two retailers companies. Some companies are specialized in one specific claim: Lidl uses less claims than other, excepted for other claim; Picard is not significantly different in claims use, excepted for convenience which is used significantly higher than average. Picard is a retailer, with a premium positioning over the frozen distribution network, selling almost exclusively its one private brand. This convenience positioning can be linked with the product storage, as frozen products communicate more on convenience, e.g. the use of microwave to defrost the product. The two manufacturers present in this top 10 use more claims than average. Iglo is more positioned on sustainable (almost 75% of its products) and natural (around 50% of its products). On its side Findus, although on sustainable claim too, is well positioned on convenience claim.

In the GNPD, the seafood storage can be refrigerated (38.19% of innovations), frozen (31.39%) or ambient (30.41%). There is slightly more products with at least one claim in the frozen category and slightly less in refrigerated (Table 3). There is more convenience claim in frozen category while there is less health claim. This can be explained by two main reasons. For the convenience claim, as said before, frozen products are intrinsically linked with this positioning (e.g: rapid defrost). Then, the frozen products can be perceived as less healthy than fresh one, and in that case this claim is not sought by consumer. Inversely, there is less convenience claim in ambient category while there is more health (as well as more sustainable and natural claims). In this category, there is less intrinsic need to claim

on convenience (e.g. can technology has not changed so must from consumer side, there is not so much “more easy to open”). Furthermore, the fatty fish (as sardine and mackerel) are more often commercialized in can, thus in ambient (77% of bluefish), while the lean fish (as cod and pollock) are more often commercialized in frozen (cod 52%, pollock 77.24%). Yet, fatty fish are rich in omega 3, which can be pointed to the consumer through health claim, which could explain, at least partially, the difference between storage.

Table 3. Repartition of claims by storage. Source: GNPD; 22,406 observations

	Percentage of products with at least one claim.	Percentage of products with sustainable claim.	Percentage of products with natural claim.	Percentage of products with health claim.	Percentage of products with convenience claim.	Percentage of products with other claim.
Refrigerated	62.95*	24.55***	18.88*	12.64	27.72	18.21***
Frozen	65.07**	28.96*	15.92	10.87***	33.88***	16.12
Ambient	63.21	31.87***	18.63*	15.82***	22.96***	12.02***

Mean comparison test (t-test): significant at *10%, **5%, ***1%

We can look at the species mainly used in the seafood innovation in European market. The recognition of species is not easy as there is no obligation for transformed products in Europe to clearly identify the kind of fish used in the product. Thus, 14.57% of seafood innovation cannot be linked to a specific species (Table 4). The seafood ingredients are presented on the product as fish or seafood. Furthermore, the scientific name is almost never specified, which makes the distinction between close species (between tunas for example) complicated. Nonetheless, regarding general fish species, we have some interesting result. The most important species in terms of innovation are Salmon (20.37% of seafood innovation contains salmon), Crustaceans (17.17% of seafood innovation contains crustaceans) and Tuna (15.65% of seafood innovation contains tuna). Those species correspond to the more consumed species in Europe: Salmon and shrimps are part of the main seafood consumed in France (FranceAgriMer (2014)), salmon is also largely consumed in Belgium and Netherland (Brunsø, 2008) while tuna is largely consumed in Spain (Brunsø, 2008). The species with the greatest number of products with at least one claim are the Pangasius, the Haddock and the Seabass. Behind those three species, there is different reality. Pangasius is not a common species in Europe; it is not an endogenous one as Pangasius is mostly raised in Asia. To thwart a poor image of this fish in Europe, it's seems that companies tried to communicate on the sustainability, as it is the species with the most important share of sustainable claim. For the Haddock and the Seabass, the positioning is mostly on sustainability/naturality and convenience. The convenience claims are also mainly used for the shellfish and the mussel, underling a need for consumer to be helped in the way to consume shellfish (cleaning & cooking). The products with the smallest claim use are the bluefish products (Clupeidae, mackerel, and anchovy), generally commercialized in can, well known from consumer, and already easy to use.

Table 4. Repartition of seafood innovation in regards of the species. Source: GNPD; 22,406 observations

Species	Number of products	Frequency on European market (%)	Percentage of products with at least one claim.	Percentage of products with sustainable claim.	Percentage of products with natural claim.	Percentage of products with health claim.	Percentage of products with convenience claim.	Percentage of products with other claim.
Bluefish	1970	8.79	51.88	21.32	11.78	13.76	14.47	11.88
Trout	437	1.95	58.12	20.82	12.36	11.44	22.88	20.59
Cephalopods	1097	4.89	52.87	10.76	14.49	8.84	33.18	10.85
Herring	917	409	57.25	35.88	20.83	8.29	8.94	8.40
Cod	1508	6.73	69.50	33.02	23.41	15.58	34.15	14.32
Crustaceans	3848	17.17	59.69	21.52	16.09	10.50	30.93	16.32
Flatfish	273	1.22	62.64	37.00	12.45	10.99	23.08	14.65
Haddock	327	1.46	83.49	40.98	29.97	20.49	32.11	25.08
Shellfish	999	4.46	64.16	20.22	14.51	10.11	41.34	17.42
Mussel	724	3.23	64.64	18.78	15.19	14.78	44.75	9.53
Pangasius	149	0.66	75.84	47.65	14.77	16.11	34.23	22.15
Pollock	1608	7.18	75.81	38.99	23.69	19.22	41.85	15.67
Salmon	4565	20.37	67.19	29.40	17.85	11.11	29.16	21.56
Seabass	91	0.41	82.42	28.57	29.67	14.29	45.05	21.98
Tuna	3506	15.65	66.12	40.25	15.74	13.72	23.05	12.18
Seafood	3265	14.7	60.31	13.32	22.39	12.96	29.68	15.62
Freshwater Fish	263	1.17	63.50	17.49	21.67	10.65	33.46	15.59
Other fish† (species specified)	376	1.67	60.11	16.22	22.87	18.35	29.26	16.49

† Species representing less than % of innovations have been gather in one category, except Pangasius.

4.1.1 Results from GNPD by species

4.1.1.1 COD

Innovations for products containing Cod follow the same path as global seafood products, and the number of innovation increases over years (Figure 3). One thousand five hundred and eight (1,508) products have been launched over the period (2000-2015), which represents 6.73% of total seafood innovations. The share of innovation with cod over all seafood innovations is decreasing across European countries, especially in Czech Republic. The only country with an increasing share of cod innovations is Sweden. Most of them are a new variety extending existing range (47%) or a totally new product (34%). There is also more reformulation in cod innovations than for others species. As seafood in general, majority of innovation containing cod have at least one claim (69.50% of products). The positioning is mainly convenience (34.15%), sustainable (33.02%) and natural (23.15%). At the European level, the number of innovations with sustainable claims is increasing faster than for other species, but this rate is slower for any other claims, showing a market tendency of cod products over sustainability.

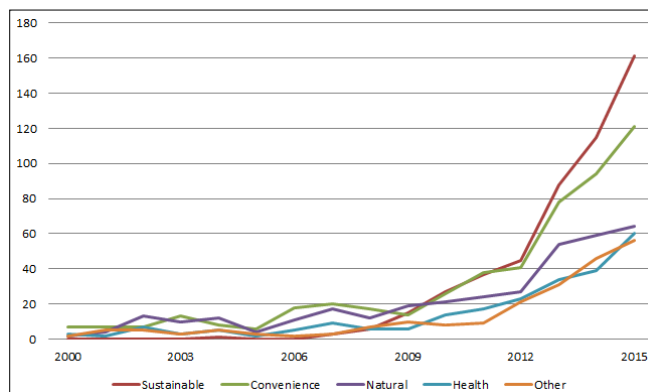


Figure 3. Innovations by claims Source: GNPD; 1,508 Observations

We observe that at the European level the five most innovative companies for cod products are from United-Kingdom (Marks & Spencer, Findus, Tesco, Iglo) or Germany (Lidl) (Table 5), and belong to the top 10 firms in seafood innovations. Distribution of innovation among firm is more concentrated for sustainable and natural claims, but can be considered as weak as companies on the top 5 share only 33.99% of innovations maximum. The major companies are present over all positioning; most of them are retailer companies. Only no claims products bring companies less innovative compared to the previous one (Delabli and Sagit).

Table 5. Major firms by claims (for Cod products). Source: GNPD, 1,508 observations

	Top 5 firms	Nbr of products	Share of top5 firms
All cod	Marks & Spencer, Findus, Tesco, Lidl, Iglo	1508	18.97
Sustainable Claims	Marks & Spencer, Findus, Lidl, Iglo, Birds Eye	498	32.33
Natural Claims	Birds Eye, Marks & Spencer, Iglo, Asda, Tesco	353	33.99
Convenience Claims	Marks & Spencer, Findus, Picard, Lidl, Tesco	515	19.61
Health Claims	Asda, Marks & Spencer, Tesco, Findus, Iglo	235	26.38
Other Claims	Tesco, Lidl, Sainsbury's, Birds Eye, Coop	216	27.78
No claims	Findus, Marks & Spencer, Bofrost, Delabli, Sagit	460	14.13

Some categories of foods are more represented under some positioning than other (Figure 4). The share of child food represents 2.51% for all cod products and increases to 6.51% under natural claims, more that for sustainable claims (3.21%). The most important category, processed fish, represents 66.51% of all cod products, which is the same as for all seafood product (66.01% is processed fish), and stay stable over claims/no claims products. The result for meals shows a more important share of convenience claims products compared to all cod products. In regards of the conditioning, cod products are mainly frozen products (52.29%) and refrigerated (35.43%). The repartition between private label and national label are a little more in favour of private brand (41.38%) than for seafood as an all.

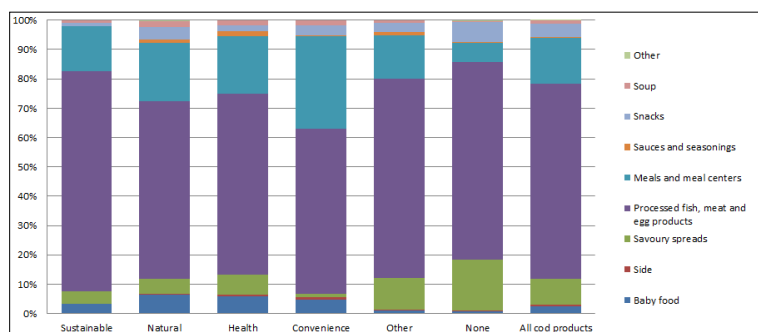
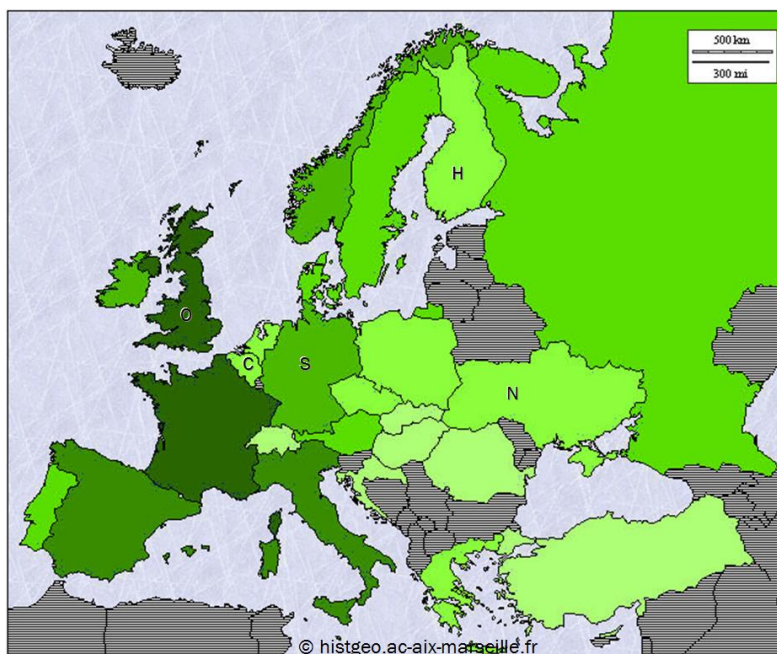


Figure 4. Repartition of innovations by food categories Source: GNPD; 1,508 observations

To conclude, cod innovations increase across European market, even if the share of cod over all seafood products is decreasing. Still, the cod products drive sustainable innovation as its contribution to this marketing positioning is increasing faster than others species. It shows an orientation of cod innovation over sustainable claims (SC) (65.26% of SC is environmentally friendly product, as MSC label). An important part of cod innovations is frozen.



Legend: Darker green = most important number of innovations, lighter green =less important number of innovations (white=no observations for cod, stripes countries are not into the GNPD database). S (N/H/C/O): Country with the most important share of sustainable (natural/ health/ convenience/ other) claims on its cod products.

Figure 5. Distribution of innovations containing Cod across Europe.

Source: GNPD—1,508 Observations

4.1.1.2 Herring

Innovations for products containing Herring follow the same path as overall seafood products, and the number of innovation increases over years (Figure 6). Nine hundred and seventeen (917) products have been launched over the period (2000-2015), which represents 4.09% of total seafood innovations. The share of innovation with herring over all seafood innovations is decreasing across European countries, meaning the number of herring innovations increases slower than all seafood innovation.

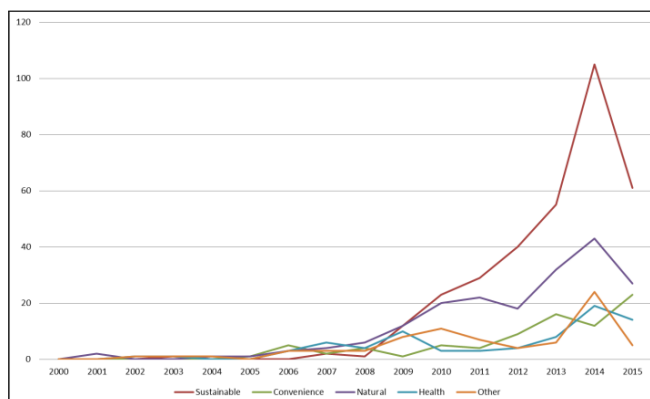


Figure 6. Innovations by claims. Source: GNPD, 917 observations

Most of them are totally new product (42%) or new variety (43%). As seafood products in general, majority of innovation containing herring has at least one claim (57.27%). Positioning is mainly sustainable (35.88%) and natural (20.83%). Convenience claim is underrepresented on herring innovations compared to overall seafood innovation (8.94% vs 28.19%). Nonetheless, the increase of convenience (as well as for natural) claims is faster for herring than for other species, meaning this situation may change within a few years.

Looking at the innovation for herring products, we can see that at the European level the five most innovative companies for herring products are from Germany and Poland (Table 6). A large majority of the companies in the top five, regardless of the claims, are from Germany. The others are from Russia, Poland, Belarus and Sweden. A majority of leading companies are manufacturer. The herring products represent more than 50% of innovation for the top five firms (except for Lidl): 75.76% of innovation by Nadler Feinkost (Germany, Manufacturer) contains herring.

Table 6. Major firms by claims (for Herring products). Source: GNPD, 917 observations

	Top 5 firms	Nbr of products	Share of top5 firms
All herring	Appel Feinkost, Lidl, Homann Feinkost, Lisner, Nadler Feinkost	917	18.65
Sustainable Claims	Appel Feinkost, Lidl, Aldi Nord, Nadler Feinkost, Aldi	329	29.79
Natural Claims	Homann Feinkost, Aldi Nord, Edmund Merl, Nadler & Appel Feinkost	191	28.80
Convenience Claims	Santa Bremor, Russkoye More, PKP Meridian, Lisner, Homann Feinkost	515	31.71
Health Claims	Appel Feinkost, Larsen Danish Seafood, Aldi, H. Kuhlmann, NR Fish	76	34.21
Other Claims	Appel Feinkost, H. Kuhlmann, Kaufland Warenhandel, Lisner, Abba Seaf.	77	27.27
No claims	Appel Feinkost, Abba Seaf., Lisner, Lidl, Homann Feinkost	392	14.13

Some categories of foods are more represented under some positioning than other (Figure 7). First, there is no child food or soup containing herring. A large majority of herring innovations are processed fish (87.35% versus 66.01% for all seafood innovations), and Meals (10.14%). Beside some savoury spread products, other categories with herring are almost inexistent.

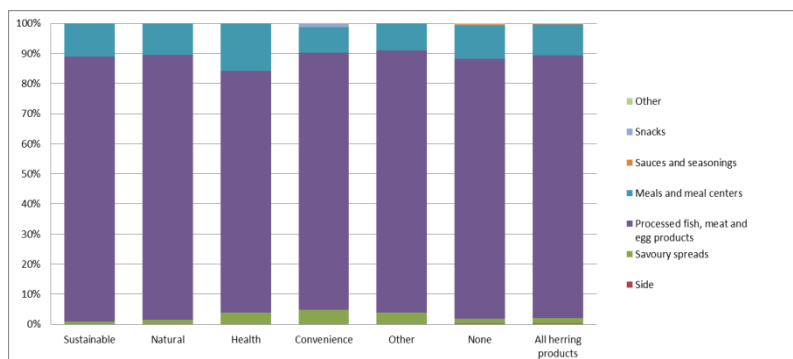
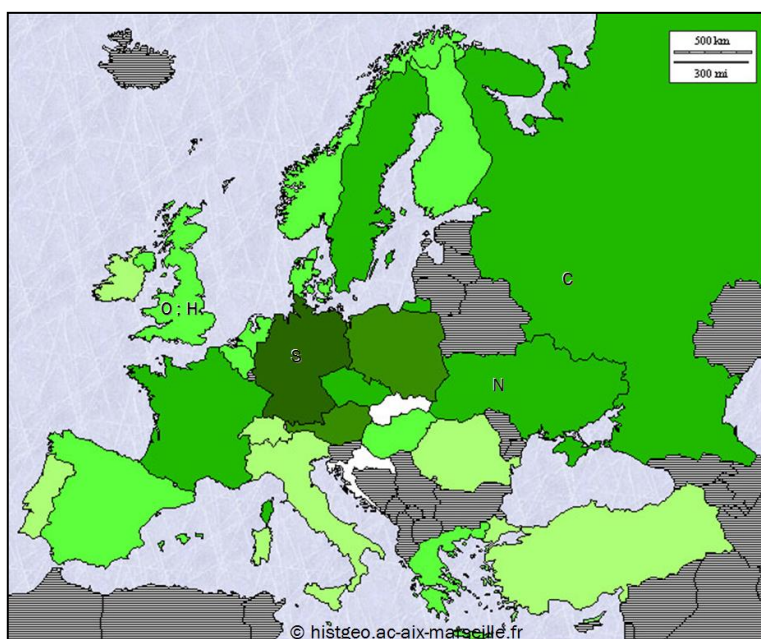


Figure 7. Repartition of innovations by food categories

Source: GNPD; 917 observations

The repartition over claims is quite the same as for all herring products, only the repartition on health claims favours meals products. In regards of the conditioning, herring innovations are mainly refrigerated (65.46%) and only few references are frozen (2.19% versus 31.39% for all seafood products). The share of national brand over private label is higher for herring than for all seafood products (77.21% versus 61.82%).

To conclude, herring innovative products are mainly produced in Germany and East European countries. Even if the number of innovation for this species increases at a lower rate than for others species, innovative herring products with sustainable claims don't follow the same path and increase faster than all seafood innovation in this positioning. Despite an absence of firms on the major innovative one (for herring products), the UK market is well positioned on other and health claims.



Legend: Darker green = most important number of innovations, lighter green = less important number of innovations (white = no observations for herring, stripes = countries are not into the GNPD database). S (N/H/C/O): Country with the most important share of sustainable (natural/ health/ convenience/ other) claims on its herring products.

Figure 8 Distribution of innovations containing Herring across Europe. Source: GNPD—917 Observations

4.1.1.3 Trout

Innovations for products containing Trout follow the same path as global seafood products (Figure 9), and the number of innovation increases over years. Four hundred and thirty seven (437) products have been launched over the period (2000-2015), which represents 1.95% of total seafood innovations. Despite a few references, the share of innovations with Trout over all seafood innovations is decreasing, for all countries. For trout, most of them are totally new products (42%) or a new variety extending an existing range (44%). As seafood products in general, majority of innovation containing trout have at least one claim (58.12% of products). The positioning is mainly convenience (22.88%) sustainable (20.82%), and other claims (20.59%). Nonetheless, the number of innovations with sustainable claims is increasing slowly compared to other species, leading Trout to be the less innovative species in regards of sustainability at the European level. Only the number of products with natural claims is increasing a tiny bit faster than for others species. Despite few references, Swiss is the country with the faster increase of innovation with trout.

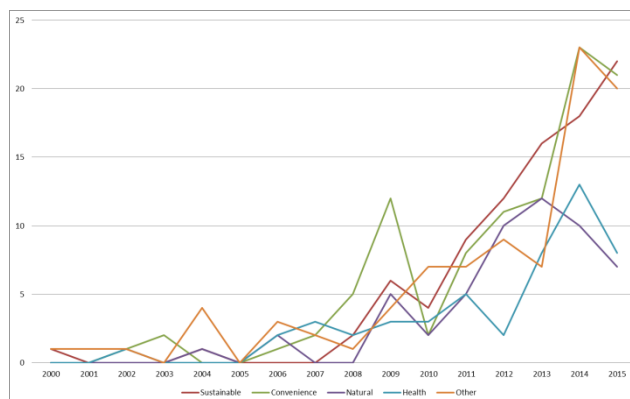


Figure 9 Innovation by claims Source: GNPD; 437 observations

Looking at the innovation for trout products, we can see that at the European level the five most innovative companies for trout products are from Germany (Lidl, Gottfried Friedrichs), France (Aqualande, Carrefour) and UK (Marks & Spencer) (Table 7). Two of those innovative firms are retailers. The trout innovations are not in a concentrate market as the top 5 firms represent only 16.02% of the innovation. Looking at the positioning scale, the east countries companies are well represented, especially on the natural claims (Russkoye More — Russia, Amstor— Ukraine).

Table 7. Major firms by claims (for Trout products). Source: GNPD, 437 observations

	Top 5 firms	Nbr of products	Share of top5 firms
All trout	Lidl, Gottfried Friedrichs, Aqualande, Marks & Spencer, Carrefour - CMI	437	16.02
Sustainable Claims	Aqualande, HiPP, Marks & Spencer, Distriborg, Monoprix	91	23.08
Natural Claims	Aqualande, Russkoye More, Amstor, Fischzucht Alexander Quester, HiPP	54	22.22
Convenience Claims	Lidl, Marks & Spencer, Labeyrie, Nestle, PKP Meridian	100	19.00
Health Claims	Aqualande, HiPP, PKP Meridian, Nestle, Saarioinen	50	40.00
Other Claims	Lidl, Gottfried Friedrichs, Aldi, Carrefour – CMI, Marks & Spencer	90	30.00
No claims	Gottfried Friedrichs, Lidl, Aldi, Bofrost, Vejle Seafood	183	16.39

Some categories of foods are more represented under some positioning than other (Figure 10). Indeed baby food represent only 2.98% of products innovation containing trout but represent 18% of products with health claims and around 9% for sustainable and natural. Furthermore, all baby food containing trout have a marketing positioning. Meals and meal centers category more presents 13% of trout products with convenience claims when it represents only 6.41% of all trout products.

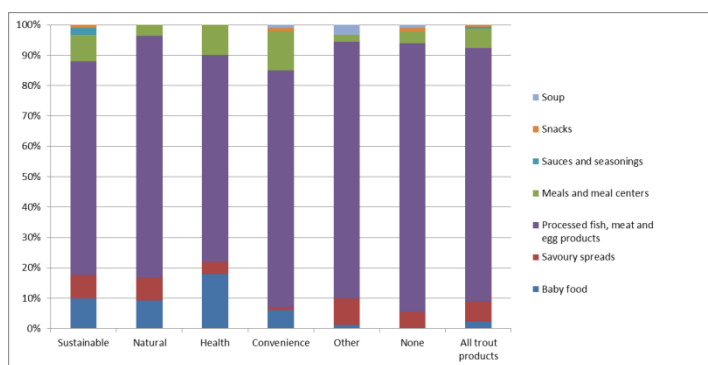
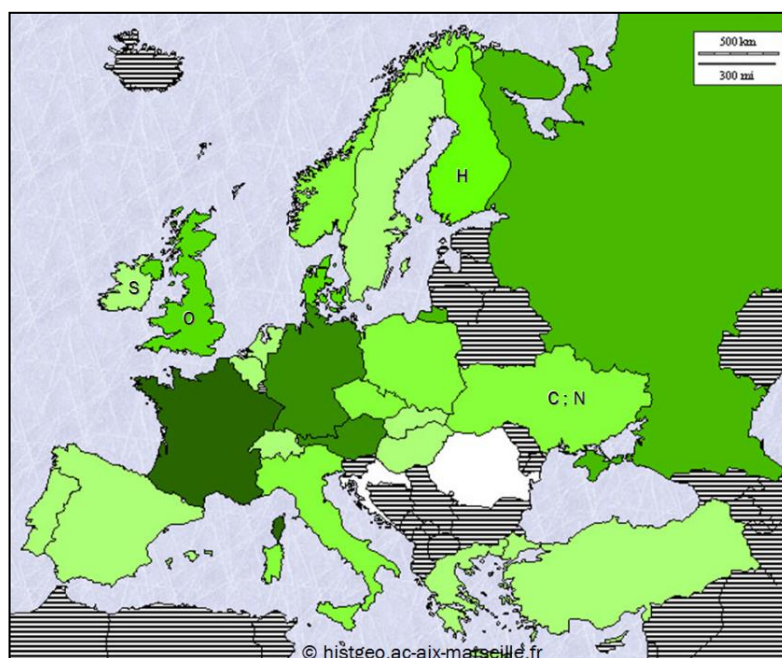


Figure 10. Repartition of innovations by food categories Source: GNPD, 437 observations

The trout based product are mainly processed fish, 82.61% which is higher than for all seafood innovation, as only 66.01% of seafood innovation are processed fish. In regards of the conditioning 77.35% of trout products are refrigerated (versus 38.19% for all seafood products). The repartition between private label and national label is identical to the seafood category as an all, that to say around 61% of products innovation from national brand.

To conclude, products containing trout are not the most innovative seafood products, few references have been listed in the database used. The number of sustainable innovations increased slower than for other species, but faster for natural innovations even if the coefficient is weak. The most innovative firms are not necessarily the same than for seafood in general, and the most innovative countries (number of products) are not the most strategic on market differentiation through the use of claims.



Legend: Darker green = most important number of innovations, lighter green = less important number of innovations (white=no observations for trout, stripes countries are not into the GNPD database). S (N/H/C/O): Country with the most important share of sustainable (natural/health/convenience/other) claims on its trout products.

Figure 11 Repartition of innovations with trout across Europe.

Source: GNPD; 437 observations

4.1.1.4 Salmon

Innovations for products containing Salmon follow the same path than global seafood products, and the number of innovation increases over years (Figure 12). The salmon is the most important species in seafood innovation. Four thousand five hundred and sixty five (4,565) products have been launched over the period (2000-2015), which represents 20.37% of total seafood innovations. On the period, the share of innovation with salmon over all seafood innovations is stable at the European level, but it increases in Ukraine, Ireland, Denmark and it decreases in Turkey, UK and Portugal. Most of them are a new variety extending existing range (46%) or a totally new product (38%) As seafood in general, majority of innovation containing salmon have at least one claim (67.10% of products) and the share of salmon innovation with claims increases, the fastest increase being for Ukrainian market. The positioning is mainly sustainable (29.40%), convenience (29.16%), and other (21.56%) Only convenience and other claims increase slower for salmon than for other species, but the share of these claims is already high for salmon products.

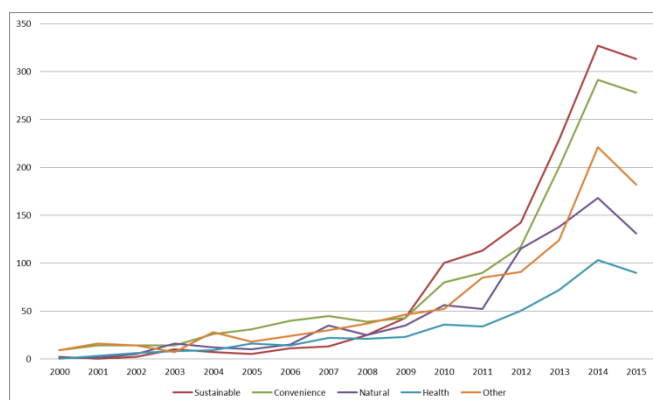


Figure 12. Innovations by claims. Source: GNPD, 4,565 observations

Innovative salmon products are mainly support by firms from the top 10 of most innovative firms (Table 2 & Table 8) as Marks & Spencer, Lidl, Aldi and Tesco. Only two companies on most important innovative firms are not retailers (Labeyrie and Nestlé), and all of them are major companies in Europe. For a large majority, salmon represents one third of their innovation. Only the companies Labeyrie is specialised in Salmon, as this species represents 85% of the brand new products.

Table 8. Major firms by claims (for Salmon products). Source: GNPD, 4,565 observations

	Top 5 firms	Nbr of products	Share of top5 firms
All salmon	Marks & Spencer, Lidl, Labeyrie, Tesco, Aldi	4,565	16.23
Sustainable Claims	Marks & Spencer, Tesco, Labeyrie, Waitrose, Lidl	1,342	26.75
Natural Claims	Marks & Spencer, Labeyrie, Tesco, Asda, Iglo	815	21.23
Convenience Claims	Marks & Spencer, Labeyrie, Tesco, Picard, Waitrose	1,331	18.48
Health Claims	Asda, Marks & Spencer, Albert Heijn, Tesco, Nestle	507	20.12
Other Claims	Lidl, Tesco, Marks & Spencer, Labeyrie, Aldi	984	25.30
No claims	Lidl, Marks & Spencer, Labeyrie, Aldi, Picard	1,498	14.13

Some categories of foods are more represented under some positioning than other (Figure 13). The repartition of food categories across claims is consistent for salmon products, and is consistent with seafood in general. Only the repartition changes for health claim, as the share of child food increases (7% versus 1.38% for all salmon products) at the depend of all others categories; and the repartition for convenience claim, as the share of meals increases (31% versus 18% for all salmon products). In regards of the conditioning 64,65% of trout products are refrigerated (versus 38.19% for all seafood products). The repartition between private label and national label is close to the seafood category as an all, that to say around 57.44% of products innovation from national brand (versus 61.82% for all seafood).

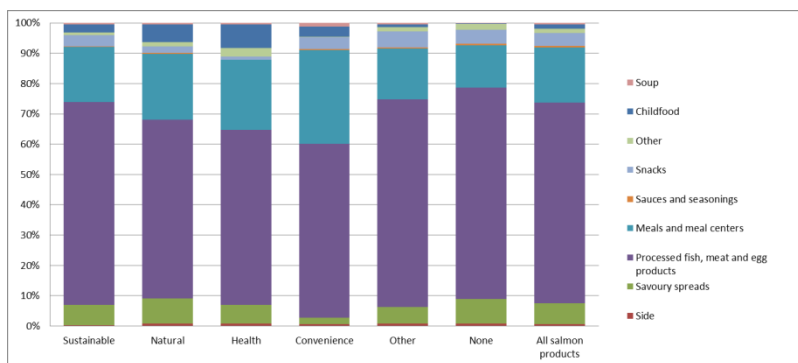


Figure 13 Repartition of innovations by food categories Source: GNPd, 4,565 observations

To conclude, salmon is an important species due to the number of innovations, but the share of salmon is relatively stable over the period. Major companies in salmon market are major retailers in the European market, and only few salmon specialized companies, as Labeyrie, are present among the most innovative companies. The use of sustainable claims increases, but this increase is not significantly different than the average increase of all others species in the European market.

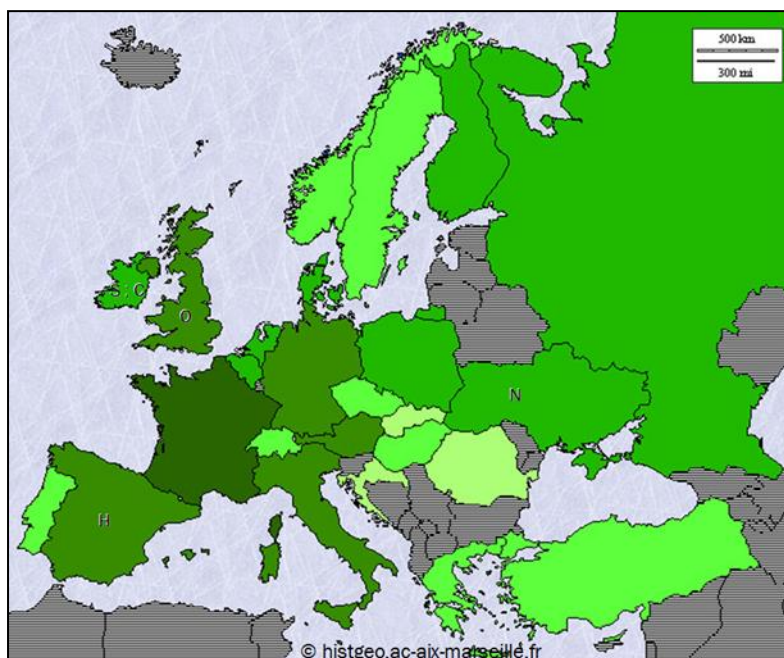


Figure 14. Repartition of innovations with salmon across Europe.

Source: GNPd; 4,565 observations

Legend: Darker green = most important number of innovations, lighter green = less important number of innovations (white = no observations for salmon, stripes countries are not into the GNPd database). S (N/H/C/O): Country with the most important share of sustainable (natural/ health/ convenience/ other) claims on its trout products.

Focus by species (5)

4.1.1.5 Pangasius

Innovations for products containing pangasius follow the same path as global seafood products (Figure 15). Nonetheless, the number of products with pangasius launched in Europe is still very low as only 149 products have been launched over the period, that to say only 0.67% of total seafood innovations. The share of innovation with pangasius over all seafood is decreasing over the period. Most of them are a new variety extending existing range (48%) or a totally new product (41%). There is less new packaging in pangasius innovations than for others species, but there is more range extension. As seafood in general, majority of innovation containing pangasius have at least one claim (75.84% of products). The positioning is mainly sustainable (47.65%), convenience (34.23%) and other (23.15%). At the European level, the share of pangasius innovation with claims is stable, only Belgium market shows an increase in this share. The share of products with natural and sustainable claims increase, but with a slow slope and at a lower rate than others species.

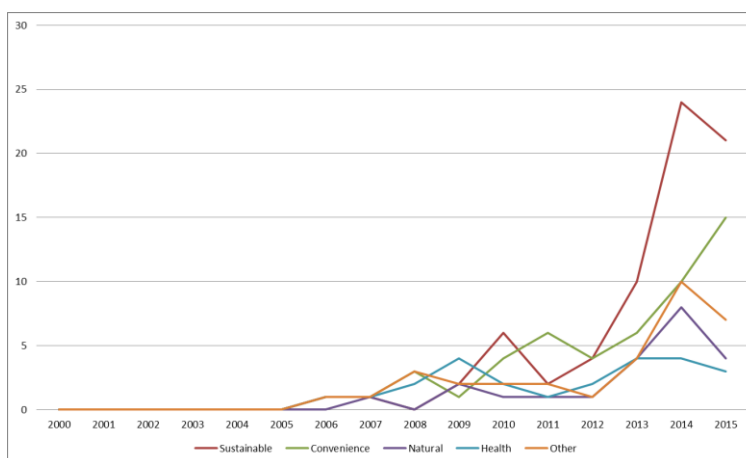


Figure 15 Innovations by claims Source: GNPD, 149 observations

The innovation for pangasius products come mainly from two firms from the top 10 of innovative firms: Lidl and Aldi (both retailers and German). The top five firms are well represented on the majority of claims (besides natural and no claims). The firms in the pangasius market are mostly major companies where innovations with pangasius represent less than 5% of the firm innovation. However, some companies with only few innovations (less than 5) are specialized on pangasius innovations (Seamark, Alfredo Foods or DM Drogerie Markt).

Table 9. Major firms by claims (for Pangasius products). Source: GNPD, 149 observations

	Top 5 firms	Nbr of products	Share of top5 firms
All pangasius	Lidl, Aldi, Young's, Queens Products, Albert Heijn	149	30.20
Sustainable Claims	Lidl, Young's, Aldi, Queens Products, Okoland	71	49.30
Natural Claims	DM Drogerie Markt., Okoland, Tesco, Young's, ATB Market	22	54.55
Convenience Claims	Lidl, Aldi, Queens Products, Tesco, Albert Heijn	51	41.18
Health Claims	Adli, DM Drogerie Markt., Young's, Albert Heijn, Alfredo Foods	24	54.17
Other Claims	Young's, Lidl, Albert Heijn, DM Drogerie Markt., Seamark	33	45.45
No claims	Appel Feinkost, Bofrost, Dia, Frost Invest, Iceland	36	27.78

Some categories of foods are more represented under some positioning than other. First, there are no side and soup products with pangasius in it. The majority of pangasius products are processed fish (more than for all seafood, 80% versus 66%) and meals (less than for all seafood, 11% versus 17%). Another category is more important for pangasius than for all seafood being the child food sector (4% versus 1%) and it is even greater for natural claim (27% versus 4%) and sustainable claim (8.5% versus 1.8%). As said before, the important share of natural and sustainable claims on pangasius products is a way to thwart a poor image of this fish in Europe. As it is in line with the general consumer expectation on the child food market this result is not surprising. The majority of pangasius innovations are frozen (70%) or fresh (19%). The share of national brand and private label are quiet similar (53.69% and 46.31% respectively), which shows a more important representation of private label than for all seafood (38%).

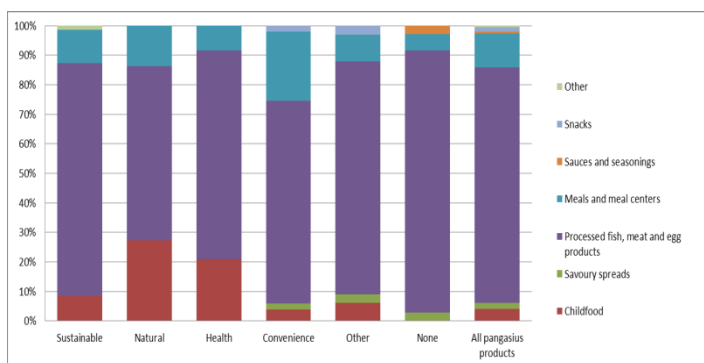
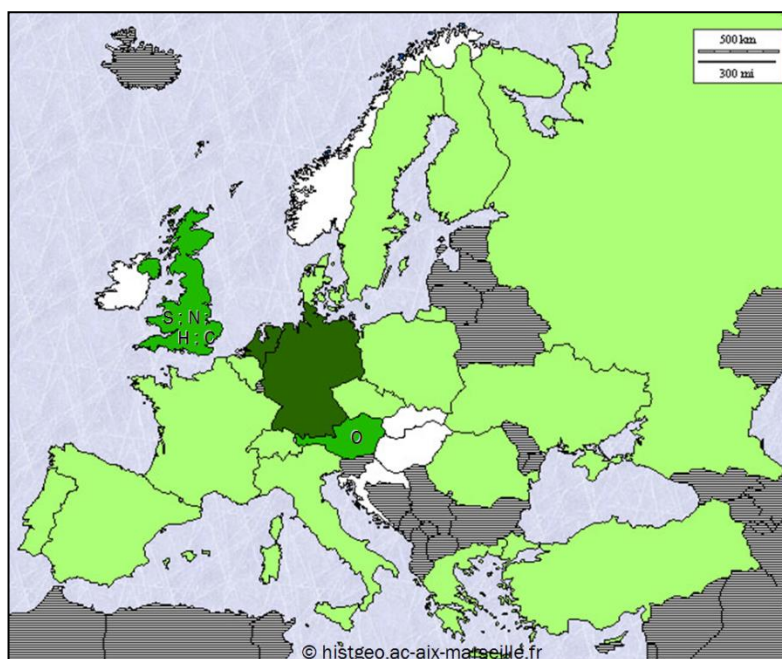


Figure 16. Repartition of innovations by food categories Source: GNPD, 149 observations

To conclude, pangasius is not a widespread fish in Europe, and it represents only 0.67% of seafood innovation. Nonetheless, pangasius products have a clear positioning on naturalness and sustainability, probably in order to thwart the poor perception of this fish in European market.



Legend: Darker green = most important number of innovations, lighter green = less important number of innovations (white=no observations for pangasius, stripes/countries are not into the GNPD database). S (N/H/C/O): Country with the most important share of sustainable (natural/ health/ convenience/ other) claims on its trout products.

Figure 17. Repartition of innovations with pangasius across Europe.

Source: GNPD; 149 observations

Focus by species (6)

4.1.1.6 Seabass & Seabream

Innovations for products containing seabass and seabream (thereafter seabass) follow the same path than global seafood products, and the number of innovation increases over years. However, only 91 innovative products have been launched during 2000-2015 in the European market, which represents 0.41% of total seafood innovations. The small number of innovation underlines the fact that seabass is not commonly transformed, it is generally

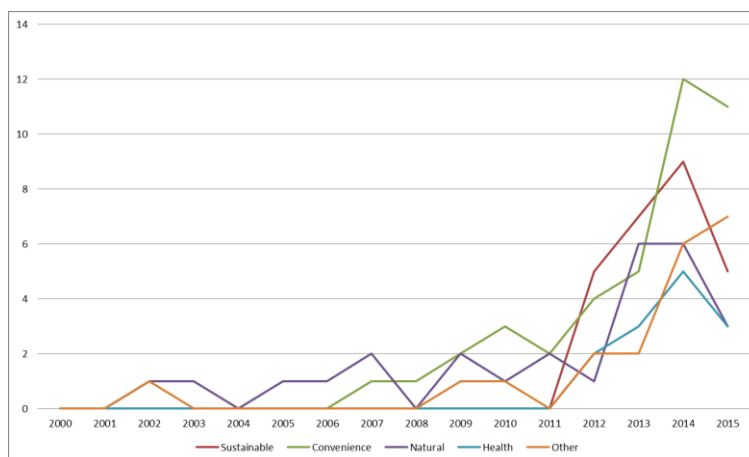


Figure 18. Innovations by claims Source: GNPD, 91 observations

consumed (bought by end consumer) as whole fresh. If the number of product increases, the share of innovation with seabass over all seafood innovations decreases. Most of them are a new variety (48%) or a totally new product (45%). There is less new packaging in seabass innovations than for others species (2% versus 11.72%). A large majority of innovation containing seabass have at least one claim (82.42% of products). The positioning is mainly health (85.71%), other (78.02%) and sustainable (71.43%). At the European level, the share of seabass products with claims increases, especially in Turkey. The use of health claims increases faster for seabass than the average of other species, and it is also true for the use of sustainable claims.

A lot of firms are on the seabass market, they are either major companies on the seafood market or minor players. We can distinguish three strategies. Major retailer seafood firms, as M&S, are on the seabass market but this species represents less than 1% of their innovation. Thus, this choice can be interpreted as a diversification but with not much risk taking. We find intermediate firms, as Guyader, for which seabass represents 4 to 10% of firm's products. Finally, there are also some small companies, as Coldfish: seabass can represent 100% of their innovations. Those companies are manufacturers, mainly from Italia and Turkey, and in this case the bet on seabass products success is more important.

Table 10. Major firms by claims (for Seabass products). Source: GNPD, 91 observations

	Top 5 firms	Nbr of products	Share of top 5 firms
All Sea Bass/Bream	Marks & Spencer, Picard, Lidl, Nuova Azzurro, Plasmon Dietetici Alim.	91	25.27
Sustainable Claims	Plasmon Dietetici Alim., Marks & Spencer, Iglo, Picard, Tesco	26	53.85
Natural Claims	Marks & Spencer, Plasmon Dietetici Alim., Coldfish, Guyader, Iglo	27	48.15
Convenience Claims	Marks & Spencer, Lidl, Salmon Club, Dardanel Onentas, Gea	41	34.15
Health Claims	Plasmon Dietetici Al., Çamlı Yem Besicilik, Appetais, Coop It., Dimar	13	61.54
Other Claims	Picard, Iglo, Arctic Royal, Auchan, Coop Italia	20	40.00
No claims	Aldi, Marks & Spencer, Bioresurs, Bofrost, Concept Cool V.	16	43.75

Some categories of food are more represented under some positioning than other. First, there is no soup, no side and no other categories with seabass. The overall repartition of seabass leads to more processed fish (75.82% versus 66.01%) and child food (5.49% versus 1.03%), and less meals (9.89% versus 17.08%), the difference being stronger for sustainable (80.76%, 11.53% and 3.84% respectively). The health claims gives pride of place to child food (around 30%). In regards of the conditioning, seabass products are mainly frozen products (50.55%) and refrigerated (36.26%). The repartition between private label and national label are a more in favour of national brand (58.24%).

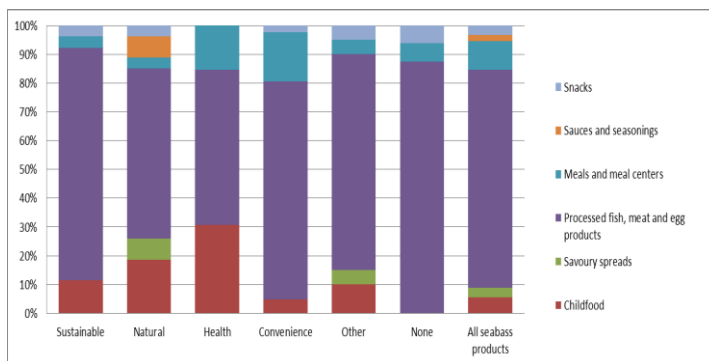
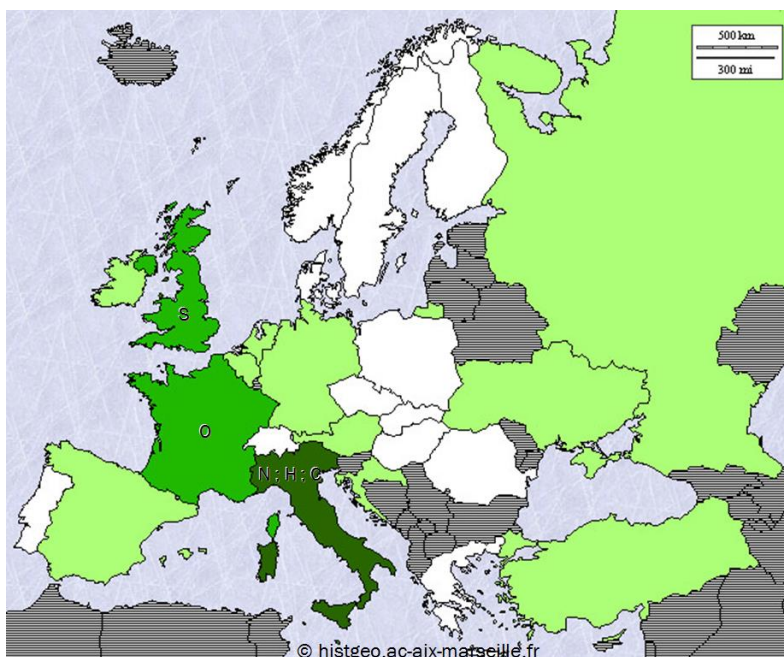


Figure 19. Repartition of innovations by food categories Source: GNPD, 91 observations

To conclude, seabass products are not numerous on the market, but many kind of firms are interested in its commercialization. Some of them as a diversification, others as a central species to developed. A large majority of seabass products has a market positioning to help the acceptance of transformed seabass. Indeed, it is a species usually consumed fresh, without any transformation.



Legend: Darker green = most important number of innovations, lighter green =less important number of innovations (white=no observations for seabass, stripes countries are not into the GNPD database). S (N/H/C/O): Country with the most important share of sustainable (natural/ health/ convenience/ other) claims on its trout products

Figure 20. Repartition of innovations with seabass across Europe.

Source: GNPD; 91 observations

4.2 Results from case studies and discussion

4.2.1 Innovative potential at the supra-company level

When investigating the selected case material i.e. the products and the approaches chosen by the associated companies it can be observed that companies to a large extent are i) aware of the consumer trends of wanting more convenient product i.e. more ready-to-cook and ii) respond to it, but to a different extent. In part this might be as commented by one of the cases, related to the markets behaving differently i.e. in southern Europe it is still an issue that consumers want to see the whole fish – “to see the fish in the eyes” (a matter of checking for freshness), while for northern Europe this is not so much an issue.

Some products also claim an added value through being marinated or having other added features making it a different taste experience and also as above being more ready to eat i.e. more prepared for the plate.

Further the products have common features also based on external expectations as claiming quality and also sustainability i.e. quality in respect of taking responsibility for the environment and/or ecological balance in the nature. Other orientations driven by market or consumer trends are being oriented towards i.e. claiming a healthy product. And, only one of the selected products has a price claim which also could be regarded as an external drive i.e. a significant proportion of the customers expecting food stuff to be offered at an affordable price. Also, on the other hand, premium price claims might be related to a player wanting to show superiority of the product.

The market price of raw material i.e. whole fish might also as commented by at least one case, negatively affect the willingness and/or felt need for innovation i.e. if selling raw material is more profitable than processed products. But, refraining from taking part in the innovative development might be risky with respect to access to future market share i.e. if larger volumes of the market are moving into processed seafood. And, it is e.g. observed from the Mintel data base that Turkish industry has a higher innovation degree than EU producing countries, and at the same time it is observed that the majority of the growth in the seabass and seabream markets, especially in Northern Europe – with more processed products, is taken by Turkish exports to EU.

There are also some examples of products being driven by new technologies becoming available i.e. processing technology and or technological equipment.

The relation in importance between the external drivers and internal drivers seems to be relatively different where in some companies one is mainly responding to major external trends as a basic strategy, while in others there is a strong internal drive for developing the production and the products. The material might indicate that the latter is more present in private family owned small and medium sized enterprises, while for larger enterprises e.g. stock market or investor owned companies, innovation comes as a result of a decided strategy based on market/consumer trend analysis. The material might also indicate that smaller companies to a larger degree claim that continuous innovation is important for staying in business and/or growing.

Often the justifications for providing the new product is a presence of an unsatisfied market i.e. a market demand, and the trend of customers asking for a more convenient product is highly present in most of the cases investigated. Also, to a large degree, successes is claimed to be based on ability to satisfy the market. Few cases report to have made a product not being demanded, but still becoming a success when customers see the positive attributes of it.

A few of the selected products has place of origin or the history of origin, as a major attribute, but this way of promoting products seems to be less developed than e.g. convenience of a product, and also may be, less than within other food product sectors like the livestock industry.

When addressing future development the important features pointed at for seafood innovations seems primarily to be addressing the need for convenient products; however, also addressing consumer trends among younger people is commented as a key strategy.

4.2.2 Company's innovative potential

4.2.2.1 *Company size and resource availability*

According to the analysed cases, larger and smaller companies present some commonalities and some differences regarding their innovation practices. Additionally, some finding match with the literature, while other results do not. For example, both type of firms do product, and process innovation, which could be both classified as incremental (for a definition see (Balachandra and Friar, 1997) but with different levels of originality. It was not possible to establish a correlation between firm size and innovation activity. Nevertheless, their innovation styles, source of ideas and development differ. Small firms had a slightly higher tendency for process innovation than the larger firms. However, larger firms launched more 'new products' to the market than small ones. While a larger firm can launch until five to ten 'new products' a year; smaller firms declare to launch until three or four 'new products' per year.

There are also important differences on how small and large firms define a new product. While large firms base this definition on the customer, on stimulating the demand and the purchasing/acquisition activities; small firms focus more on the novelty dimension. Only one small firm made reference to the consumers, by defining a new product as that one that allows the firm to reach current non consumers. This shows how both type of firms have different focus and approached when developing innovations. Large firms keep a clear target, to get the customer to buy the product and to generate a profit, no matter if the innovation is really 'new' or just an adaptation. Small firms, on the other hand, focused more on actually generating new things, something that was not in the market. This could be seen in two possible ways. On one hand, it can show how more innovative oriented are small firms than large ones. On the other hand, it might show the lack of a clear product definition and target customer so that to create products for which there is no existing market.

Big companies usually followed a more structured product development model, part of a wider innovation strategy with budget allocated for innovation activities, whereas in small companies the process was described often as "trial and error". Nevertheless, in both small and big companies, success has been achieved regardless of the presence or a lack of a clear model. In fact, large firms tend to focus on internal innovation and to be customer driven. The small firm's innovation process is also internally driven and by its customers, however, the way it is develop is different. Smaller firms

do not have a clear R&D department. In fact, in some cases, these companies associate with external partners as universities and research institutions in order to cover the lack of a R&D and develop new ideas for key innovations. Small firms also base more their innovations on the available resources that can come from within the company (CEO/entrepreneur and workers) or from external sources (suppliers and distributors). Regarding their in-house innovation, it is usually developed through the interaction of different people at diverse positions in the company. The entrepreneur or the CEO has a key role in this process, while the other managers/workers bring their expertise into the development of the new product. Moreover, frequently the first trials of the product are done at the internal level of the firm, between other workers or even with family members. Innovation can be also driven by the available/developed technology within the firm.

Concerning the innovation coming from external sources, several small companies report that they have received ideas for new products from their suppliers or the retailers that distribute their products. Innovative ideas from suppliers usually come in the form of new raw material or the availability of a different fish species. Then the firm takes over and develops the possible product according to their objectives or ideas. Retailers, on the other hand, are more direct in the way they bring innovative ideas to the firm. In some of the cases, small firms reported to have un-formal suggestions from the retailers regarding possible interesting products for the company. In other cases, retailers directly contacted the firm and explicitly requested the elaboration or development of some private brand products. Sometimes this 'new products' are based on one of the small company's products, in other situations, the idea can come directly from the retailer.

Taking in consideration that 8 from the top 10 innovative firms are actually retailers, this fact provides some evidence on a key relationship between small and large retailers for the generation of innovation, in which small firms might have a bigger role than thought. For small firms, this becomes a way of promoting their product among retailers and other business in order to create business to business relationships. However, it is also a risky move, as the retailer might change their mind and change provider. To face this risk, many small firms are moving towards also developing a direct contact with the final customer, through local markets promotion, social media, sampling displays, etc. There is an on-going debate about the role of retailer's own label products in competition with new branded products. It has been argued by experts that innovation comes from brand producers which are used by retailers for creating new markets, consequently exploited by the retailers own brand fully or partially. This statement was confirmed by several of the cases investigated here, particularly as it related to reward on investment, since innovation requires significant investment, so without consumer loyalty, the rewards to the innovator can diminish considerably.

In fact, given the lack of financial resources, small firms are not able to sustain big investments in R&D, product line expansions and marketing campaigns, while large firms can. Large firms are able to afford different kinds of promotional campaigns (including TV) and then monitor their results. Smaller firms lean more on public relations through social media, trade fairs and direct interaction with the customer. However, many of them do not track the results of these activities. Also, small firms tend to rely more on their experience, particularly the experience of the founder or CEO.

Large firms also have more resources and a more defined structure in the way they research and develop innovations. However, small firms are also quite innovative, regardless their limited financial

resources. Small firms lean more on the capabilities of their staff, founder/CEO and previous experiences. In fact, it was observed that in some cases the development of new products based on existing products/inventions but in different industries (e.g. beef or poultry).

4.2.2.2 Firm's strategy and orientation

All the analysed firms declared to be high quality oriented, however, the type of claim to sustain this quality varies among them. Although, in general terms there is a trend towards producing products based on the health claim, there are also differences concerning the size of the firm. Large firms tend to have a clear message on what a higher quality means, usually focused on health claims or convenience. Sustainability and natural claims also are common among large firms. Small firms tend to enhance a lot the focus on quality as their main point of differentiation with other competitors, but their claims vary. The most popular claim among small firms is artisanal production, followed by health and premium products. Artisanal in this context is seen as a good and bad point. On one hand, it offers a traditional product with traditional methods, something that brings sentiment ('home-made') or as it was before. On the other hand, some firms perceived also as a limitation, as usually is not linked to innovation or technology driven production.

In general, smaller firms tend to offer a wider variety on the use of claims. This also can be seen as a result of their strategy. These firms target niche markets, so they tend to focus on particular sectors of the market, trying to target customer with certain preferences (environmental friendly, natural, gluten free, etc.). One interesting and recent trend is to differentiate their product as a 'local' or 'regional' product. In some cases, the 'local' argument is used for key inputs in the breeding of the fish, which enhances their product attributes because of the inputs involved (e.g. the fresh water in the area). Other firms, have used the 'local' claim as a way to refer to high quality, as Europe in general has quite strict production norms. However, this last approach is mainly used only by firms at the regional level, and either way it might vary according to the market. Some small firms have currently certifications mainly because this is the only way the company can sell their products. This is mainly the case for business to business, as high quality processors or distributors, also look for high quality inputs or products.

In fact, large firms have more certifications than smaller firms. This makes sense, as large firms are also more internationally oriented (small firms prefer close markets) and to sell high quality products in international markets, a certification would provide the guarantee of such quality. Additionally, in the last years, a common way of expansion for large firms, has been through acquisitions. This has allowed them not only to enter new geographical markets, but also to integrate their value chain. This definitely has proven to be advantageous for them, as they are able to ensure traceability and quality from the start of the value chain, a limitation that some small firms have expressed (not being able to find the right quality inputs).

4.2.2.3 Firm capabilities

There are important differences on how small and large firms perceived their main capabilities. It becomes quite clear that large firms have developed more their market research and consumer communication capabilities. Small firms are still trying to do so, but there is a lack of monitoring their activities and their results. Also there is a general lack of access to resources to implement some market research methods. However, some small firms are trying to get some customer information in different ways. For example, through direct contact with their customers at the sale point, by

developing and improving their website to be customer friendly or by trying to obtain such information through their retailers. Only one small company among the selected, actually does customer trials.

Additionally, small firms enhance more on their knowledge as one of their key capabilities. This matches the literature, as in small firms the founder/manager tend to be a central figure that drives the firm. Moreover, the staff is usually highly involved in many decisions, and roles might overlap. For example, in several cases the founder or the quality managers were also in charge of the design of the packing. Regarding the search of opportunities, trends and information, there were no important differences regarding the size of the firm or the fish species. Neither for the skilled workers, as both type of firms also considered as a key capability.

4.2.2.4 Relationship with other companies/institutions

The most common kind of relationship with other firms is the one that ensures some kind of vertical integration in the value chain. This relationship might be with a supplier, in order to ensure certain quality or availability of the product, or with a distributor or exporter/importer, in order to guaranty the delivery to the customer under the right circumstances. There are also some R&D relations among the firms and research institutions or universities. This s mainly the case for small firms, but some large firms also practice this approach. For small firms, it is also more common to have informal agreements or partnerships with other companies or manufacturers.

4.2.3 Innovation at the project level

4.2.3.1 Drivers for innovation

In most of the cases the main driver for innovation, whether product or process, was the pursuit of larger market share or sustained competitiveness. Accordingly, for successful cases an increase in the overall performance of the firm was reported, albeit to varying degrees. However, in a case of a small scale producer, a clear innovation strategy has been followed with constant introduction of value added products, even though the company admitted, they were not bringing extra profit for the time being. The reasons for that could be found in a longer-term and outward-looking business strategy in which innovation is seen as a key competitive advantage for the future. This move was believed to be also the result of a strong and transformative leadership after the company's acquisition by a larger agri-business.

Interestingly, however, one case went against the general pattern in terms of drivers of innovation. In this case of an unsuccessful product by a large-scale company, primarily focused on production of raw material, the innovative product (based on process innovation) was abandoned because of better financial performance achieved by selling non-value added products. The market at which the product was launched had a preference for whole fish rather than fillets, so no significant premium could be obtained through value addition product to justify the cost of production. In addition, in order to enter the multiple retail channel, relatively large volume of the product was required, which the company considered too risky provided the low price. The company seemed to be aware of a trend for growing markets for convenience products but in the short term found it more profitable to limit itself to providing non-value added products. From a global value chain perspective this process has been labelled 'downgrading' (Ponte and Ewert, 2009). And while traditionally, 'upgrading' has been associated with actions aimed at 'moving up the value chain', through producing higher value-added products or acquiring more sophisticated functions, in the broader sense abandonment of such

functions or products in order to 'reach a better deal', including a balance between rewards and risk, could also be considered a form of upgrading. In this case, a link between the scale of production (economies of scale) and level of value addition, dictated by market conditions, could be established.

4.2.3.2 *Source of innovation*

In small companies, new product development was triggered typically by the senior managerial team, often including the owners of the business themselves. Two general patterns of idea generation were observed: (a) the idea originated from within the enterprise and (b) or from external sources. In the first case, the company develops new products based on perceived strong market demand, or due to experimentation with new, improved or existing production processes. Only a proportion of the developed products reach the stage of market launch. In the second case, sources of innovation could be clients, most commonly, research institutions and development agencies. When the new product characteristics were defined by the client a varying level of input into the design of the new product was still coming from within the company as it experimented with alternative product forms. One of the unsuccessful cases came from a company (B) which was 'requested' to produce a ready-to-cook meal with particular specifications which were believed by the retailer to lead to success. At the end, the failure was attributed to the inappropriate selection of fish species as the main ingredient by the producer, leading to 'customers didn't like the taste'. At the same time a 'sister product' by the same company, with alternative fish species but utilizing the same concept, was successful. Another unsuccessful case of a ready-to-cook meal however, came from innovative activity fully originating within the company. As with other new products, it was led by the owner and associates from the company without a clear strategy or preceding marketing research. And although it was designed to fit within the broader market for healthy and natural products, the approach resembled 'shooting in the dark' and its lack of success was believed to be caused by being 'boring' and 'lacking emotion'.

In a case of a large export company ideas for new value added product development came from external agencies closer to the final EU market, which was believed to be strongly linked to the success of those products since the company was experiencing limitations with 'consumer understanding' being physically distanced from the market, complicated by providing products completely new to the market. In another case of a large European-based highly successful provider of branded value added products, innovation was partly outsourced to an external agency. The success of the product was believed to be due to satisfying a need for convenience as well as bringing awareness through advertising.

The source of product innovation observed here could be classified as 'company push', (whether the focus lay on the product or on the process of innovation) and 'customer pull', when the concept of the new product is provided by a client. This classification at the product level, could be seen as an elaboration of the existing typology of technology 'push' and 'market pull' regarding the orientation of a company e.g. (Grunert et al., 1997). Thus, at the project level we could distinguish between two types of product initiation. It could be reasoned that 'customer pull' type of projects would meet with more success as they are based on demand experienced by the seller, and are thus closely linked to the needs and wants of the end consumers. Similarly, the investment required for such innovation could be expected to be significantly smaller, given that the associated unsuccessful projects for each successful one are avoided. On the other hand, providing products to customer's specifications usually means marketing under private label. And while this can increase the volume of production, it may

lead also limited options for branding and imposition of too much control by the retailer over the processor. The influence of quality specification on value chain governance, the power of retailers and distribution of benefits has been examined by (Ponte and Gibbon, 2005) and applied to wine production in South Africa (Ponte, 2009). As seen in the results here, the level of 'flexibility' a producer has when receiving specifications for a new product would play a role in the chance for success of the product. The more flexible the request is, the more it resembles an in-house new product development process.

4.2.3.3 Justification of launch

In all cases, successful products were launched in expectation of a positive reaction from the market. And while in all cases the innovators could cite a reason for launch of the particular product, the level of detail in their reasoning varied. In a case of an unsuccessful product only broad trend in the market – growing health consciousness was cited. On the other hand, a significant proportion of the successful products targeted a particular barrier to fish consumption according to the consumer's perception, e.g. bones, ease of preparation, lack of cooking knowledge. Generally, successful products were characterised by a more careful 'tailoring' of the product to the needs of the market where they were launched. On the other hand, too much 'tailoring' was partly blamed to be the reason for loss of brand identity and therefore market failure in a case where a domestically successful product was launched in a foreign market. However, the unsuitability of the market for this particular concept may have also played a role, as stated by representative from the distribution channel, linking again to the importance of market understanding.

4.2.3.4 Market research

As seen above, this appeared to be an important factor for the success of new projects. The level of investment and extent of market research varied, usually with size of enterprise and resource availability, but good understanding of consumer needs was not necessarily achieved in the standard 'scientific' way. In cases of small companies, typically 'mini' consumer research was conducted with members of the staff. That is also where ideas for new products were often generated. For example, in one case of a small company, it was reported that it is the women workers who propose the ideas for new recipes. However, it can be argued that basing the research on too small a sample, particularly composed of closely associated people could introduce a level of bias as to what the real consumer needs are on a bigger scale. In another case, the founder of the enterprise achieved good consumer understanding by working at a different job, close to a large number of end consumer. He applied his insight understanding of the consumer needs into an improved production process, leading to a successful product. A clearer idea of the target consumer appeared to be associated with more success, particularly when the product was tailored to that particular customer group's perceived needs. However, there were highly successful cases for which the target customer was a very large group, e.g. domestic consumes, 'anybody who likes fish' or young consumers. In those cases a characteristic of the product usually removed a barrier to consumption.

However, since successful cases of both types were present, the size of the sample cannot be directly linked to the performance of products. Suffice to say, it is recommendable that the scope of marketing research conducted should be relevant to the size and coverage of the intended market.

4.2.3.5 *Originality*

Virtually all, but one, of the companies interviewed considered themselves innovative. However, all cases investigated could be characterised as having medium to low level of originality. None of the products was truly new to the market and there was no major 'invention' present. In most of the cases 'newness' came from combining familiar concepts in a new way, e.g. different species of fish in an existing recipe. Here, 'borrowing' of ideas from the wider food industry was present to a considerable extent. Improvement or variations upon existing concepts was the other level of originality, e.g. new recipe. Combining improved concepts in a new way, provided yet another level of originality, e.g. new recipe for a sauce in a combination with a different species of fish. In terms of processes, in several of the cases improvements in existing processes or an application of technology in a new manner was serving as a basis for new product development. At the end, the products were improved to better suit the needs of the consumers, but were not radically new. The level of newness was important in determining whether a product would enter a new market or an established market. However, none of the products investigated were imitators either, but in two of the cases 'copying' of the concept by retailers and reintroducing the product under new label was cited as a problem by producers.

4.2.3.6 *Innovation process*

The level of resource involvement again varied according to size of the company. A team of trained chefs and a dietician working together in a multi-disciplinary team including dedicated R&D members was described in one successful large scale company case. In another large company, the success of products was attributed mostly to the help of an external agency. The involvement of human resource in the development process in small companies was primarily focused on senior management and staff members with multiple functions. However, involvement of external sources such as research institutions and business partners was also reported by small companies. It was noted that in all cases, the process was not limited to an R&D team but wider human resource pool was utilised.

Strong leadership and dedication on the side of management throughout the process was found to be highly positive for the success of innovation products. In a case of a family-owned small scale company, the highly proactive management approach combined with strong marketing capability was believed to be a key success factor for the product. In general, the strong management involvement was found to be important in SMEs.

Similarly, involvement of end consumer in the process was found in all success cases. End consumers were involved usually at the prototype testing stage of the process. However, in small companies, this was limited again to the immediate surroundings of the developers – family, friends, staff, with the limitations associated with such approach discussed above.

4.2.3.7 *Advertising and promotional activities*

In small companies the promotional activities were often limited to marketing efforts by the owner who would engage with potential clients to promote products which have successfully passed the development and prototype testing stage. Accepted products would be advertised through local media sources (newspapers, magazines, radio, TV) or the participation of a company representative at social events. Considerable advertising effort and expenditure was reported in one of the highly successful large scale companies. TV advertising campaigns at this company were run annually and online and social media advertising continuously, tailored to the like of younger consumers. TV campaigns were reported to be successful in recruiting new consumers in the long term. The company is also building

awareness through the organisation of events where consumers are encouraged to participate. It is the company's strategy to educate consumers, with particular focus on young generations. On the other hand, a highly successful product from a small scale company was completely dependent on the promotional activity by the owners and their direct engagement with customers.

5 Conclusions and Recommendations

While due to sampling limitations, no major generalisations could be made about the wider industry, the results of the cases investigated point towards the need for a purposeful and goal-oriented approach to innovation, with strong leadership and intellectual input from various sources.

The most successful companies were highly 'market oriented'. They had identified unsatisfied consumer needs, targeted a barrier to fish consumption, or exploited a growing market trend. All unsuccessful cases had the similar feature of not matching with the consumer needs, either completely or to a level below which production was unprofitable.

There was a strong indication that a new seafood product has to be a good 'fit' for the intended market, implying the need for a clear understanding of the market (whether through marketing research or other means) and target consumer.

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